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Development and Psychometric Properties of a Self-Efficacy to Walk for Health Scale for use with Midlife and Older, Low-Income, African American Women

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Development and Psychometric Properties of a Self-Efficacy to Walk for Health Scale for use with Midlife and Older, Low-Income, African American Women

by

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Dedication

To Marvin, with love and appreciation.

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Development and Psychometric Properties of a Self-Efficacy to Walk for Health Scale for use with Midlife and Older, Low-Income, African American Women

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This methodological investigation was conducted to develop and validate a Self-Efficacy to Walk for Health Scale (SEWHS) for use with midlife and older, low-income, African American women. Although self-efficacy is a well-established correlate of physical activity behavior (including walking) in adults, there has been little study of this construct in minority populations.

Through a focus group of women representative of the study population, barriers to walking for health were developed for inclusion in the SEWHS. Content validity of the SEWHS was estimated through expert evaluation. Estimates of construct validity and reliability were accomplished through the use of the SEWHS in a survey with its intended population. Instruments included: Self-Rated Health, Self-Rated Weight, Self-Reported Walking for Health, Stage of Change for Walking for Health, and Self-Efficacy to Walk for Health.

In the sample of midlife and older, low-income, African American women (*N*=109), almost half (47%) completed 12 years of education; 47% completed 13 to 18 years. A majority (68%) were overweight or very overweight. Only 3 participants reported walking at the recommended level (30 minutes, 5 days a week). However, in the Stage of Change question, 39% reported walking at this level. The discrepancy between these measures of walking behavior needs further investigation.

Exploratory factor analysis of the SEWHS provided evidence of construct validity. SEWHS internal consistency reliability (Cronbach's coefficient alpha) was .92.

Correlations between study variables revealed no significant relationships between Self-Efficacy to Walk for Health, walking for health behavior, age, or education. Self-Efficacy was significantly related to Self-Rated Health and Self-Rated Weight. There was a significant relationship between Self-Rated Health and Stage of Change.

This study provides new knowledge in the area of measurement of the self-efficacy construct. Psychometric testing of the SEWHS provided preliminary estimates of reliability and validity. However, more studies are needed to verify or modify these findings.

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CHAPTER 1: INTRODUCTION

Participation in regular physical activity reduces the risk of cardiovascular disease, hypertension, diabetes, and colon cancer and has other important health benefits (Sallis & Owen, 1999; U.S. Department of Health and Human Services [USDHHS], 1999). The current recommendation from the Centers for Disease Control (CDC) is 30 minutes of moderate intensity physical activity (e.g., brisk walking at 3.0-4.0 mph) most days of the week (USDHHS, 1996). Yet, less than a third of American adults participate in regular physical activity (USDHHS). Women, older adults, and people with little education and low income are the most inactive (Adams-Campbell et al., 2000; Schoeborn & Barnes, 2002; USDHHS). Racial and ethnic differences in physical activity have been reported (Adams-Campbell et al.; Schoeborn & Barnes; USDHHS, 1999), but it is not clear whether these differences reflect socioeconomic status (Brownson et al., 2000; Frankish, Milligan, & Reid, 1998) or culture, rather than race or ethnicity (King et al., 1992).

It is unclear what interventions are the most effective in assisting individuals to initiate and sustain regular physical activity (Dishman, 1994; Harrell & Leeman, 2001). Several review articles have concluded that the majority of physical activity intervention studies have not included important subgroups, such as low-income individuals and persons of non-Anglo American ethnicity (King et al., 1992; Dishman; King, Rejeski, & Buchner, 1998; King, 2001). The Institute of Medicine (2000) recommended that research is needed to better understand psychosocial and biobehavioral mechanisms that influence the health of low-income people so that interventions can be tailored to specifically meet the needs of this population.

While interest in this population has grown and federal priorities and funding have stimulated research, there are few published studies concerning the factors associated with participation in physical activity in midlife and older, low-income, ethnic minority women. Thus, determinants of physical activity in people of different ages, ethnic groups, genders, and educational levels need further investigation. Furthermore, since older, low-income, ethnic minority women are the most sedentary and therefore, at highest risk, there is a need to understand what are the most important considerations in designing and implementing physical activity interventions specifically relevant for this population.

Investigations have shown a consistent positive association between self-efficacy and physical activity (King at al., 1992; Sallis & Owen, 1999; Trost, Owen, Bauman, Sallis, & Brown, 2002). However, "this construct has had surprisingly little study in ethnically diverse women" (Eyler, Wilcox, et al., 2002, p. 246). Existing self-efficacy scales were developed with an Anglo American, middle class, highly educated sample and may not be valid for non-Anglo American, low-income women. Further, the scales often used to measure self-efficacy also lack construct validity (i.e., they fail to measure self-efficacy in the face of impediments or barriers), limiting the usefulness of the findings. Therefore, the development of a valid and reliable self-efficacy scale for use with high-risk populations, such as low-income ethnic minority women, is a high priority in the area of physical activity research.

Purpose

The purpose of this study was to develop a Self-Efficacy to Walk for Health Scale for use with midlife and older, low-income, African American women and test this

instrument with a sample from this population to determine its validity and reliability. The instrument was then used to examine the relationships between other correlates of physical activity: age, education, Self-Rated Health, weight, self-efficacy to walk for health, and self-reported walking for health behavior. Because there are no known published studies that examine self-efficacy among midlife and older, low-income African American women, this study is designed to develop and refine a Self-Efficacy to Walk for Health Scale that can be used specifically with this population.

Background and Significance

The author was co-investigator for a preliminary study (pilot study) to increase physical activity in midlife and older low-income women of diverse ethnicities. An intervention was developed and tested with three groups of women (N=29) over a one year period (Craig & Grobe, 2002). The purpose of the pilot study was to evaluate the effect of women's participation in the Self-Management Program (SMP) intervention on general health status, self-efficacy, and self-management and health behaviors. Through the experience of conducting the pilot study and analysis of the study data, several important instrumentation and measurement issues were identified, particularly with regard to the measurement of self-efficacy in midlife and older, ethnically diverse, low-income women. These findings led to the development of the dissertation study, which focuses on the central concerns related to validity, especially the measurement of self-efficacy to walk for health, in midlife and older, low-income, African American women. Other overall instrumentation and measurement concerns associated with the measurement of physical activity and self-efficacy in low-income populations are

addressed in detail in Chapter Two. What was learned from the pilot study and how this experience influenced the dissertation is described in detail in Chapter Three.

Research Questions

The following research questions will be answered by this study. For midlife and older, low-income, African American women:

1. What are the perceived barriers to walk for health, for inclusion in a Self-Efficacy to Walk for Health Scale?
2. What are the psychometric properties of the Self-Efficacy to Walk for Health Scale?
3. What is the relationship between Self-Efficacy to Walk for Health and walking for health behavior?
4. What relationships exist between age, education, Self-Rated Health, Self Rated Weight and Self-Efficacy to Walk for Health?
5. What relationships exist between age, education, Self-Rated Health, Self Rated Weight and walking for health behavior?

Conceptual Framework

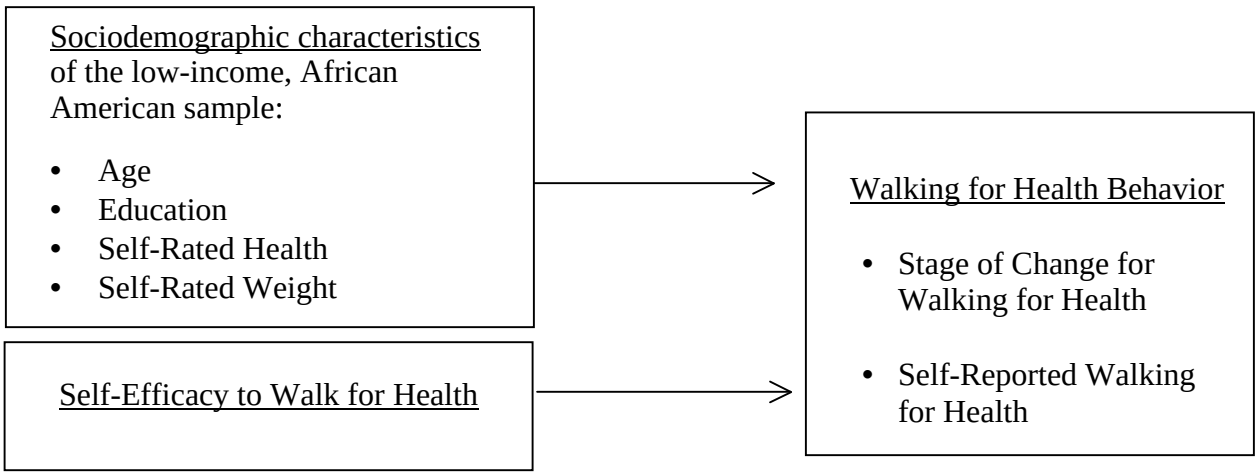
The conceptual framework is centered on the measurement of self-efficacy, one of the strongest correlates of physical activity behavior (King et al., 1992; Sallis & Owen, 1999; Trost et al., 2002). Self-efficacy is defined as the perceived confidence of an individual to initiate and maintain a behavior to achieve a desired outcome (Bandura, 1997a, 1997b). Self-efficacy is a central concept in Social Cognitive Theory. Social Cognitive Theory (SCT) synthesizes concepts and processes from cognitive, behavioral, and emotional models of behavior change. Based on a model of reciprocal determinism,

SCT describes behavior change as the result of interactions between person and environment. That is, while the environment shapes, maintains, and constrains behavior, people can be active in the process of creating and changing their environments. This relationship moves in both directions, providing reinforcement for behavior change. Furthermore, SCT suggests that human motivation and action is influenced by enactive mastery (personal experience), vicarious experience (through modeling and observational learning), verbal persuasion, and one's physiological and affective state. These are the processes by which self-efficacy is formed. According to Bandura, the stronger an individual's self-efficacy, the more likely she or he will initiate and persist in a given behavior.

Bandura (1997a, 1997b) asserts that self-efficacy is situation-specific, not a global trait; therefore the concept must be examined specific to the particular area of concern (also called the domain of functioning). While an individual may have self-efficacy for one behavior, such as quitting smoking, it does not necessarily follow that she will also have self-efficacy for another behavior, like physical activity. In addition, self-efficacy is not simply confidence in the ability to perform a behavior, but confidence in the ability to perform the behavior regularly, and in the face of impediments or barriers (Bandura). Therefore, assessments of self-efficacy must examine confidence in performing the behavior under various conditions (e.g., in the rain, when tired, when there is something more interesting to do). This important aspect of the self-efficacy construct is absent from many instruments used in physical activity research, thus the focus of this study.

A conceptual model is proposed to illustrate the relationships among the study variables (Figure 1.1).

Figure 1.1: Conceptual Model



The study variables are: sociodemographic characteristics (age, education, Self-Rated Health, and Self-Rated Weight), Self-Efficacy to Walk for Health, and Self-REPORTED Walking for Health. There is evidence that participation in physical activity, including walking, is correlated with age and educational level (Eyler, Wilcox, et al., 2002; USDHHS, 1996), perceived health (Ainsworth, Wilcox, Thompson, Richter, & Henderson, 2003; Eyler, Wilcox, et al.; King et al., 2000) and body weight (Adams-Campbell et al., 2000; Eyler, Wilcox, et al.; Jones, 2003). Thus, the relationship between these variables and Self-Efficacy to Walk for Health are examined.

Walking for health behavior is measured in two ways: Stage of Change for Walking for Health, and Self-Reported Walking for Health. Stage of Change is a core concept of the Transtheoretical Model (TTM) (Prochaska & DiClemente, 1984). This concept proposes that individuals move through stages of change as new behaviors are adopted. Stage of Change has been successfully used in an intervention study to increase adoption of physical activity among a sample of primarily middle income, Anglo American women and men (Marcus et al., 1992). There is some preliminary evidence that Stage of Change for physical activity is associated with self-reported activity level (Resnick & Nigg, 2003). However no published studies have explored this relationship in the population of midlife and older, low-income women.

In this study, Stage of Change for Walking for Health is used to assess one's current intention to walk for health or one's actual walking for health behavior. The Stage of Change scale is presented along a continuum: precontemplation (not walking and no intention to start); contemplation (not currently walking but intend to begin in the next 6

months); preparation (not currently walking but intend to in the next 30 days); action (currently walking for less than 6 months); and maintenance (walking for more than 6 months). The second walking for health behavior variable, Self-Reported Walking for Health, assesses the number of minutes walked in the past two weeks. Taken together, these variables should serve as construct validity support for an outcome behavior and may be useful for subsequent studies.

Definitions

The following definitions are used in this study:

Midlife and older. Midlife is defined as age 40 to 75 and older as older than 75 (Masse et al., 1998). In this study, midlife and older is defined as age 40 and older.

Low-income. Eligible for services through the Texas Breast Cancer and Cervical Cancer Control Program (Federal Poverty Income 200% of poverty). The 200% Federal Poverty Income Guideline, effective April 1, 2003:

Family Size	Annual Maximum	Monthly Maximum
1 Person	$17,960	$1,497
2 People	$24,240	$2,020
3 People	$30,520	$2,544
4 People	$36,800	$3,067
5 People	$43,080	$3,590
6 People	$49,360	$4,114
7 People	$55,640	$4,637
8 People	$61,920	$5,160

African American. Self-identified member of this racial group.

Perceived Barriers to Walk for Health. A woman's own estimate of what gets in the way of walking for health. These barriers are included in the Self-Efficacy to Walk for Health Scale.

Walk for Health. Traveling by foot for the purpose of improving one's health.

Self-Efficacy. Perceived confidence of an individual to initiate and maintain a behavior to achieve a desired outcome (Bandura, 1997b). In this study, self-efficacy is measured by the Self-Efficacy to Walk for Health Scale.

Self-Efficacy to Walk for Health Scale. The researcher-developed measurement tool designed to assess an individual's perceived confidence to walk for health 30 minutes, 5 days a week.

Age. Years of existence. Participants are asked to write in their age in years.

Education. Years of schooling. Participants are asked to circle the number of years of school completed.

Self-Rated Health. An individual's perceived general health. Self-Rated Health is an item from the Behavioral Risk Factor Surveillance System (Centers for Disease Control and Prevention [CDC], 2002)

Self-Rated Weight. An individual's perception of her weight compared to her height (e.g., underweight for my height, at the right weight for my height, overweight for my height, very overweight for my height). The researcher developed this item to tap an individual's weight status in a minimally intrusive way.

Walking for Health Behavior. An individual's actual walking for health performance. This is measured in two ways: Stage of Change for Walking for Health and Self-Reported Walking for Health

Stage of Change for Walking for Health. The intent to adopt or maintain a particular behavior (in this case, walking for health). This single-item measures one's current intention to walk for health and actual walking for health behavior along a continuum of the five stages of change regarding walking for health. This item was adapted from Stage of Change for Physical Activity (Marcus et al., 1992).

Self-Reported Walking for Health. Self-Reported Walking for Health consists of two questions to assess minutes per week the respondent walked for health during the past two weeks. This item is adapted from the National Health Interview Survey item "Self-Reported Walking for Exercise" (Piani & Schoenborn, 1993).

Limitations

The following are limitations of this study:

1. Self-report of walking behavior has the potential for recall bias. This threat to validity is discussed in detail in Chapter Two.
2. Non-random selection of the sample.
3. The study sample is selected from a population of women who are clients of a breast cancer screening clinic or are requesting information on breast cancer screening services (e.g., at a health fair) and may not be representative of the larger population of low-income women. The sample is comprised of one racial/ethnic group, African American.
4. The study instrument is written in English, at a 5th grade reading level, and is self-administered. If a participant is not able to read well enough to comprehend the meanings of the questions, her responses could be misleading.

5. Low-income is often a transitory state: A woman may be currently eligible for low-income services, such as those offered through the Breast and Cervical Cancer Control Program, but she may have only become low-income a short while ago, through the loss of a job, illness, death or divorce. So while this study is focused on self-efficacy and walking among low-income women, attitudes and practices of women; various income levels may be represented.

CHAPTER 2: LITERATURE REVIEW

Introduction

This chapter presents a review of the literature for the three main areas of concern for this dissertation study: (1) physical activity determinants and barriers in midlife and older, low-income women; (2) self-efficacy as a requisite for physical activity; and (3) instrumentation and measurement issues relevant to the study of self-efficacy and physical activity in low-income, ethnically-diverse populations, including: (a) measurement of the self-efficacy construct, (b) effect of culture and ethnicity on validity, and (c) measurement of physical activity behavior.

Physical Activity in Midlife and Older, Low-Income Women

The purpose of this section of the literature review is to critically analyze the research literature on physical activity and its determinants in low-income, midlife and older women. Following the analysis, gaps in the literature are identified and directions for research in this area are discussed. At this time, there is not a specific, large body of literature concerning this population. For this reason, more general studies related to physical activity in midlife and older individuals will be included in this review. Some of these studies include men as well as women, but because the data are reported separately by gender, they are included. Because the majority of low-income people are African American and Hispanic (Institute for Research on Poverty, 2002; U.S. Census Bureau, 2002), studies with these populations were also chosen for this review. If participants' income was reported as middle or upper income, the study was excluded from this review.

There are two issues regarding definition of terms in the body of literature concerning physical activity in midlife and older women. First, there is no consistent definition for the term midlife and older. The Women's Health Initiative of the National Institutes of Health has defined midlife as age 40 to 75 and older as > 75 years (Masse et al., 1998), but there is still no consensus in the research literature on how to define this population. Among the few studies done specifically with women in this age range, the sample population has been defined quite differently: 40 years and older (Brownson et al., 2000; Wilcox, Castro, King, Housman, & Brownson, 2000); 50 and older (Brady & Nies, 1999); 55 and older (Walcott-McQuigg & Prohaska, 2001); 35 – 75 years (Tortolero, Masse, Fulton, Torres, & Kohl, 1999); 30 – 60 years (Nies & Kershaw, 2002); and 35 – 50 years (Nies, Vollman, & Cook, 1999). Furthermore, while all of these studies focus on older adult women, none of the investigators describe why they defined the age of the participants as they did. Because a 35-year-old woman does not have the same physical activity attitudes, practices, and ability as a 75-year-old woman, it is important for researchers to come to consensus on a meaningful definition of midlife and older with regard to physical activity and use these definitions consistently in research.

Second, there is no consistent definition of the term physical activity in the research literature. The term "leisure time activity" is used in two large U.S. surveys, the National Health Information Survey (NHIS) and the Behavioral Risk Factor Surveillance System Survey (BRFSS) (National Center for Chronic Disease Prevention and Health Promotion, 2002), to differentiate among exercise, recreational, or physical activity (defined as leisure time activity) and occupational and housework activity. There is evidence to

suggest that the term “leisure time activity” does not have the same meaning to low-income and ethnic minority women (Airhenbuwa, Kumanyika, Agurs, & Lowe, 1995; Tortolero et al., 1999). This issue is discussed in detail in another section of Chapter 2: Instrumentation and Measurement Issues—The effect of culture and ethnicity on validity.

Qualitative Studies

Airhenbuwa et al. (1995) conducted a qualitative study to explore perceptions and beliefs about exercise, rest, and health among 53 African American men and women, aged 13 and older. Ten groups were stratified by age: 13 to 17, 18 to 35, 36 to 64, and 65 and older. For the two older age groups, recruitment was also stratified by gender and income (low income vs. middle-to-high income). Among the older groups, men reported that they did not exercise because of health problems from heart disease and injuries or because they felt they had earned rest after a lifetime of hard physical labor. Other participants believed that housework, childcare, and occupational activity were enough exercise. However, it was not specified whether these findings were attributed to men, women or both. As discussed above, these authors found that the concept of leisure time was not relevant to this population. Unfortunately, although the groups were stratified by age and income, the data were not reported in enough detail, nor was the sample size adequate, to appreciate differences or similarities between participants of different ages or incomes.

Using a focus group approach, Nies et al. (1999) examined African American women’s experiences with physical activity in their daily lives. The women (N=16) in this study were 35 to 50 years of age and middle-to-low income. The major themes that

emerged were grouped into facilitators of physical activity and barriers to physical activity. Facilitators included: (1) importance of a developing a daily routine for exercising, (2) activities that are practical and convenient, and that can be done while taking care of household responsibilities, (3) someone with whom to exercise to increase safety in a dangerous neighborhood, (4) someone to provide childcare, (5) weight loss to improve physical appearance, (6) stress reduction, (7) knowledge of the importance of activity to one's health, (8) enjoyment of activity, (9) exercising with pets, (10) family and peer support, (11) a place to exercise at home or at work, and (12) good weather. Barriers to physical activity included: (1) lack of child care, (2) lack of support, someone with whom to exercise (but not an exercise professional), (3) competing responsibilities from work and family, (4) lack of space in the home, (5) unavailability of exercise facilities at work, (6) lack of understanding about appropriate amounts and kinds of activity and lack of motivation for activity, (7) physical fatigue related to busy schedules and demands on time as well as mental fatigue (not well described), and (8) an unsafe neighborhood.

Also using qualitative methods, Walcott-McQuigg and Prohaska (2001) examined factors influencing participation of older (age 55 and older), low-to-middle income, African American men and women (N=103) in exercise behavior. The purpose of this study was to learn whether people in different stages of readiness to engage in exercise have different perceptions and beliefs about exercise. Participants were assigned into focus groups based on stage of readiness to exercise (precontemplators—not intending to exercise, contemplators/preparers—considering exercise, and action/maintenance —

currently exercising), and gender. Perception of health, social support, self-efficacy for exercise, and motivation were related to exercise behavior. Only current exercisers (action/maintenance groups) considered exercise as a way to achieve health and were able to articulate the benefits of exercise; whereas nonexercisers (contemplators/ preparers and precontemplators) discussed weight loss and diet as an important health activity. These nonexercisers also described exercise as "work" and used words like "calisthenics" and "strenuous." Nonexercisers' barriers to exercise included health problems, lack of motivation, and a perception that they did not need to exercise because they already got enough exercise through housework. Nonexercising females also were more likely to suggest that exercise makes one tired. These perceptions that exercise causes fatigue, the need for rest, and the belief that they already got enough exercise through their daily activities were also found among the participants in the Airhenbuwa et al. (1995) study. As found in the other qualitative studies reviewed for this dissertation, family responsibility was seen as a barrier to participating in physical activity for women in all groups, but not for men.

Also using a focus group approach, Wilcox, Richter, Henderson, Greaney, and Ainsworth (2002) examined the perceptions of physical activity and personal barriers and enablers in African American women aged 19 – 51. While income data were not collected, the majority of participants (*N*=42) had a high school education, but no college, and 40% were unemployed. When asked to describe the characteristics of active and inactive African American women, middle-aged participants described active women as always moving around and "on the go" and that active women are "motivated to

exercise" and "satisfied…at peace; don't be worrying about nothing" (p. 357). Inactive women were viewed opposite to active women and were described negatively such as "lazy," "don't like to do nothing for themselves" and "tied into a TV" (pp. 357-8). There was a perception among women in this study that being busy throughout the day (even if this involved sedentary activities such as driving errands) was considered physical activity. This supports the findings of other investigators (Airhenbuwa et al., 1995; Walcott-McQuigg & Prohaska, 2001) that low-income women perceive that they are physically active through their daily household and childcare activities. Middle-aged women reported health problems as barriers to activity but were able to cite the health benefits of physical activity. An enjoyable activity, such as dancing, was seen as motivating, but, in general, women reported problems with self-motivation and competing demands from family as barriers to being active.

A large, multi-site project held 42 focus groups (N=305) across the United States to determine environmental, policy, and cultural factors related to physical activity in ethnic minority women aged 20 to 50 years (M=35.6) (Eyler, Vest, et al., 2002). All but one group was low-income. Although many of women in this study are younger than the population of interest for this dissertation, the findings are included for several reasons: (1) there are few studies specifically with this population; (2) the sample is large and diverse; and (3) the focus on environmental and policy factors related to physical activity is unique (the emphasis in most studies is on individual level variables—demographic, cognitive, behavioral, emotional [Eyler, Vest, et al.]). As found in the other studies reviewed, the need for support from family and friends —for motivation, as exercise

partners, and for help with household chores to free up time to exercise—was consistently reported by women in this study. Family was seen as a top priority and a major barrier to physical activity for all the groups. Women reported needing help balancing their multiple roles (wife, mother, daughter, and community member) to fit physical activity into their day. In addition, urban African American, American Indian, and Latina women expressed that they needed support from the community to be more active. Language barriers, social and cultural norms, isolation, and a lack of role models were factors limiting the ability of these women to be physically active.

Concern with body image and lack of experience with physical activity (not knowing what to do or how to do it) were other factors limiting activity. The physical environment (e.g., bad weather, lack of sidewalks and streetlights, traffic) was also seen as a barrier to activity as was the lack of access to affordable facilities and childcare. Personal safety was also a concern for all the groups. Urban women's concerns were a fear of drive-by shootings or being harassed by homeless people or drug dealers. All groups reported that a fear of stray dogs limited outdoor activities, especially walking.

Similar findings were reported from results of the Cross-Cultural Activity Participation Study (CAPS) (Henderson & Ainsworth, 2003). This study was designed to measure physical activity habits in a sample of African American and American Indian women. From this sample, 56 women participated in in-depth qualitative interviews to obtain additional information about the psychosocial context and sociocultural meanings of physical activity. The attitudes toward physical activity for women in this study were generally positive; however, as found in other studies reviewed, lack of time was reported

as one of the biggest barriers to engaging in physical activity. Other barriers reported by these women included job demands, physical tiredness, physical illnesses, expectations and needs of family and community, economic constraints, major life changes or traumas, safety issues, weather and environment, the hassle of personal care (e.g., showering, hair care), and lack of facilities and opportunities (p. 315). Thus, while women in this study understood the value of physical activity, most had not been able to remove the barriers that prevented them from engaging in physical activity.

In summary, the findings from the qualitative studies reviewed suggest that interventions to increase physical activity in low-income, midlife and older women will be most effective if they are incorporated into women's daily lives, include elements of support and motivation, recognize the importance of family responsibilities, and address perceived barriers to activity. Concerns about safety and the need for child care and affordable and accessible facilities for activity are also issues for low-income older women. There appears to be confusion about the difference between a busy lifestyle and physical activity, indicating the need for health messages that describe the amount and type of activity needed to achieve health benefits. Since midlife and older women often report health problems as barriers to physical activity, interventions and health messages should include activities that can be done without exacerbating health problems, for example, swimming or chair exercises for women with arthritis or knee pain.

Quantitative Studies

Adams-Campbell et al. (2000) surveyed 64,101 U.S. Black women, aged 21 to 69 years, on demographic and health-related characteristics and type and level of intensity of

physical activity. Specifically, the participants were asked the number of hours spent per week in walking for exercise, moderate activity (such as housework, gardening, bowling) and strenuous activity (such as basketball, swimming, running, and aerobics). Fifty-seven percent of the participants reported less than one hour per week of walking, and more than 40% of the participants were overweight or obese. Women who participated in strenuous activity during high school were more likely to walk for exercise, suggesting the importance of physical activity in school as an early preventive intervention.

Wood (2002) conducted a secondary analysis of data from the National Health and Nutrition Examination Survey III Household Adult Data File (1988-1994) to describe and compare exercise practices and preferences in Anglo American, African American, and Hispanic adult men and women with diabetes (N=1614). Older participants (age 40 and older) preferred walking and gardening; however, there were no ethnic differences in exercise preference.

Wilcox et al. (2000) examined rural-urban differences in determinants of leisure time physical activity in middle aged and older ethnically diverse women. Rural women were more sedentary than urban women. Both urban (n=1096) and rural (n=1242) women reported lack of time and lack of energy as major barriers to physical activity. However, for rural women, caregiving duties were the greatest barrier. These barriers may reflect the role strain faced by women and support current recommendations to incorporate physical activity into women's daily lives (Wilcox et al.). Another important finding was that urban African American women were more likely to report the lack of sidewalks, street lights, enjoyable scenery, and access to facilities and not seeing others exercise in

their neighborhood as barriers to activity. Both Brownson et al. (2000) and Wood (2002) found that walking was the most common activity among women with lower education and income. These findings suggest that environmental and policy interventions to provide low income women with safe, enjoyable, and accessible places to walk may be important to promote physical activity in this population (Brownson et al.).

King et al. (2000) explored barriers to physical activity among active and inactive women aged 40 and older of diverse ethnicities (*N*=2912). Approximately 58% had a high school education or less, and 60% reported household incomes of less than $35,000 per year. Older and less educated women were less likely to be physically active. The most common correlates of inactivity for the entire sample were lack of energy, lack of hills in the environment (not well-explained), perceived poor health, and not seeing others exercising in the neighborhood. Caregiving duties (not defined) were associated with inactivity in African American women. For Hispanic women, lack of time was most often associated with inactivity. These findings are consistent with other research reviewed. However, the personal safety issues described in other studies were not found to be associated with physical activity level in this sample.

The Women and Physical Activity Survey (Ainsworth, Wilcox, Thompson, Richter, & Henderson, 2003) examined the personal, social, and physical environmental correlates (determinants) of physical activity in African American women in South Carolina aged 20 to 50 years (*N*=917). While the majority of participants had a high school/equivalent degree (27.8%) or some college (40.7%), most had a family household income between $15,000 and $35,000 (52.4%), and 13.8% had an income of less than $15,000. Most had

at least one child living in the home (74%). The 2001 Federal Poverty Limit Guidelines define the 200% poverty level for a family of three as $29,260. Thus, it is possible that the majority of the sample in this study could be defined as low-income. For this reason and the unique aspects of this study—this study assessed correlates not well-established in the literature, it is included in this review.

Among the women in the Ainsworth et al. (2003) study, women who rated their health (Self-Rated Health) as excellent or very good were 55% more likely to meet the current CDC/ACSM recommendations for physical activity (Odds Ratio [OR]= 1.55). A new and interesting aspect of this study was the examination of "social role strain" as an influence of physical activity behavior. In this study, social role strain was operationalized by a social roles score, which "represented a composite of the degree to which social roles such as child care, household responsibilities, and work interfered with physical activity" (p. 28). Women who had low social roles scores were more likely to meet physical activity recommendations than women with high social role scores. The influence of women's social roles on physical activity behavior is an area in need of more research.

Summary

Although eliminating health disparities and increasing physical activity are national health research priorities, there is still a lack of published research for one of the most at-risk groups, low-income, midlife and older women. The research consists mainly of descriptive or exploratory studies rather than randomized, controlled trials or intervention studies. In addition, the current research is limited by a lack of consensus on the

definition of midlife and older and how to define and measure exercise, physical activity, and leisure time activity, especially for low-income women. In addition, there is evidence that the term leisure activity, used in many of the large national studies, is not relevant and has a different meaning for low-income women.

The most frequently reported barriers to activity for this population are fatigue, family responsibilities, caregiving duties, and role strain, lending support to the current recommendations to incorporate physical activity into daily life. Family responsibilities are seen as a top priority and the biggest barrier to activity. Interventions emphasizing the importance of taking care of your self in order to take care of your family will allow women to participate in physical activity without feeling that they are neglecting their family's needs or being selfish. Including children and other family members in physical activity interventions can also be used to address this barrier.

Based on this review, many women understand the importance of physical activity for health and well being, but those who are sedentary (and thus at greatest risk) are more likely to have misconceptions about what physical activity is and how it can affect health. More research is needed with this "most important, yet most understudied" subgroup (King et al., 2000, p. 362). One study suggested that early experiences with physical activity were related to participation in strenuous activity in adulthood (Adams-Campbell et al., 2000). This finding has policy implications, especially in light of recent controversy surrounding physical activity in schools, and is in need of further examination.

The current research acknowledges the complexity of factors— psychosocial, policy, environmental, demographic—that have an effect on physical activity levels in low-income women. Research that uses multi-level models that account for the various factors that may facilitate or hinder physical activity, including social role strain, will increase our understanding of the complex nature of this problem. This research should identify the factors most relevant to the lives of low-income midlife and older women so that interventions can be tailored specifically to meet the needs of these women in the context of their lives.

Self-Efficacy for Physical Activity

Self-efficacy is a person's perception of confidence or belief in his or her ability to make a behavior change (Bandura, 1977, 1997a, 1997b). King et al. (1992) summarized the state of knowledge with respect to the known determinants of physical activity in adults and found strong evidence that self-efficacy is correlated with physical activity. Love, Davoli, and Thurman (1996) examined the degree of consensus among 311 health behavior change professionals regarding the personal and environmental factors they believe most strongly influence health behavior decisions related to smoking cessation, regular exercise, and weight loss. According to these professionals, behavioral intentions (level of intention and commitment to making a change), self-efficacy and quality of social support are the most powerful determinants of behavior change. In a review of physical activity determinants literature, Sallis and Owen (1999) found that among the approximately 300 studies reviewed, self-efficacy was the strongest correlate of physical activity in almost every study in which it was examined and virtually every study that

measured social influence on physical activity found a significant (positive) association. Trost et al. (2002) reviewed and updated the evidence relating to the correlates of physical activity through a review of 38 new studies published between 1998 and 2000, and found that self-efficacy and social support continued to be positively associated with physical activity.

The purpose of this section of the chapter is to critically analyze recent research testing the self-efficacy construct on the initiation and maintenance of physical activity in low-income, midlife and older women. Because there are few published studies with low-income women, relevant studies with women at various income levels are included.

Self-efficacy is defined as the perceived confidence of an individual to initiate and maintain a behavior to achieve a desired outcome (Bandura, 1997a, 1997b). Self-efficacy is a central concept in Social Cognitive Theory. Social Cognitive Theory (SCT) synthesizes concepts and processes from cognitive, behavioral, and emotional models of behavior change. Based on a model of reciprocal determinism, SCT describes behavior change as the result of interactions between person and environment. That is, while the environment shapes, maintains, and constrains behavior, people can be active in the process of creating and changing their environments. This relationship moves in both directions, providing reinforcement for behavior change. Furthermore, SCT suggests that human motivation and action is influenced by enactive mastery (personal experience), vicarious experience (through modeling and observational learning), verbal persuasion, and one's physiological and affective state. These are the processes by which self-

efficacy is formed. According to Bandura, the stronger an individual's self-efficacy, the more likely she or he will initiate and persist in a given behavior.

Bandura (1997a, 1997b) asserts that self-efficacy is situation-specific, not a global trait; therefore the concept must be examined specific to the particular area of concern (also called the domain of functioning). While an individual may have self-efficacy for one behavior, such as quitting smoking, it does not necessarily follow that she will also have self-efficacy for another behavior, like increasing physical activity. In addition, self-efficacy is not simply confidence in the ability to perform a behavior, but confidence in the ability to perform the behavior regularly, and in the face of impediments or barriers (Bandura). Therefore, assessments of self-efficacy must examine confidence in performing the behavior under various conditions (e.g., in the rain, when tired, when there is something more interesting to do).

In a recent review of correlates of physical activity among women from diverse racial/ethnic groups, Eyler, Wilcox, et al. (2002) stated: "Self-efficacy…is one of the most widely studied psychological correlates of physical activity for the general population." Investigations have shown "a consistent positive association between self-efficacy and physical activity levels; however, this construct has had surprisingly little study in ethnically diverse women" (p. 246). Furthermore, studies with low-income women are even scarcer than studies with ethnically diverse women of any age, particularly midlife and older women. For this reason, studies testing the relationship between self-efficacy and physical activity in midlife and older adults of various income levels are discussed in this section.

Evidence exists that there is a positive relationship between self-efficacy and the initiation and maintenance of physical activity in older adults. In a study with 187 mostly Anglo American (98%), female (83%) adults aged 65 to 85 years, Resnick, Palmer, Jenkins, and Spellbring (2000) found that regular exercisers had significantly greater self-efficacy than nonexercisers. Speck (2001) also found that self-efficacy predicted maintenance of regular physical activity among a sample of 100 employed women aged 20-62 years (M =39.9). Resnick (2001) tested a model of exercise behavior with a sample of 175 mostly inactive Anglo American (99%) females (78%), aged 65 and older and found that self-efficacy, outcome expectations, and physical health accounted for 30% of the variance in exercise behavior. In a study with 198 sedentary African American (48%) and European American (52%) women aged 30-60 years, Nies and Kershaw (2002) found that self-efficacy had a significant influence on activity performance (defined as time to walk 1 mile); as self-efficacy increased, performance increased.

Using qualitative methods, Walcott-McQuigg and Prohaska (2001) examined factors influencing participation of older (age 55 and older), low-to-middle income, African American men and women (N=103) in exercise behavior. Based on the Transtheoretical (Stages of Change) Model, the purpose of this study was to learn whether people in different stages of readiness to engage in exercise have different perceptions and beliefs about exercise. Participants were assigned into focus groups based on stage of readiness to exercise (precontemplators—not intending to exercise, contemplators/preparers—considering exercise, and action/maintenance— currently exercising), and gender.

While all participants expressed confidence in their ability to exercise for 20 minutes twice a week, only those who were currently exercising were confident in their ability to overcome barriers (health problems, family responsibilities) to exercise. Participants' comments illustrate this best: From a precontemplater: "I have the confidence. All I have to do is get down there and start doing it." A participant in contemplation/preparation stated: "If I belonged to a group I could do it. But on my own it would never work." And from a person in the action/maintenance stage: "Of course I can do it. I like to exercise and that is one reason that I wanted to be in the exercise class" (p. 198). These comments illustrate the various degrees of self-efficacy and reinforce the importance of designing physical activity interventions to group participants by level of readiness to change. While this study makes a good contribution to the literature and is one of a few published studies that include low-income women in the sample, it is limited by the use of qualitative methodology. These investigators attempted to measure self-efficacy with one question: *How confident are you in your ability to exercise for at least 20 minutes, two times a week?* According to Bandura (1997b) assessments of self-efficacy must examine confidence in performing the behavior under various conditions (e.g., in the rain, when tired, when there is something more interesting to do). A single item self-efficacy question in a focus group format does not adequately measure the construct.

The Women and Physical Activity Survey (Ainsworth et al., 2003) examined the personal, social, and physical environmental correlates (determinants) of physical activity in African American women in South Carolina aged 20 to 50 years (N=917). In this

study, odds ratios (OR) were calculated to compare hypothesized correlates between women who were physically active and those who were not. The odds of being active at recommended levels were 2 times higher (OR=2.04) for women with high self-efficacy ("very confident") than for women with low self-efficacy ("somewhat/not at all confident"). However, in this study, self-efficacy was measured using a single item question, limiting the usefulness of these data. The measurement of self-efficacy is discussed in more detail in a later section of this chapter.

While most research demonstrates a positive relationship between self-efficacy and physical activity, there is some evidence that this relationship is not always positive. For example, Castro et al. (1999) examined whether a physical activity intervention altered four psychosocial variables (self-efficacy, social support, perceived barriers, and enjoyment) and led to increased physical activity in 128 ethnic minority women 25 to 55 years of age. Although these four psychosocial variables have been identified as correlates for participation in physical activity in other studies, the only significant correlate of change in physical activity was self-efficacy—and this was an inverse association. According to these authors, this association was likely related to the high level of baseline self-efficacy for physical activity among the sample; the participants may have overestimated their ability and underestimated the barriers involved in becoming more physically active. As they became more active their assessments became more realistic, resulting in lower self-efficacy. Similarly, a physical activity intervention study with predominately Anglo American, college educated women (*N*=49) found that self-efficacy scores decreased in both the intervention and control groups, with greater

decreases in the intervention group (Speck & Looney, 2001). The investigators suggest that the intervention—daily recording of physical activity—increased subject awareness of their activity and the barriers to maintenance of activity.

It is likely that for sedentary women, making the decision to enter into a physical activity intervention study requires at least a moderate amount of self-efficacy. Because sedentary women don't have the experience with regular physical activity to know how difficult it can be, their expectations at the start of a program can be unrealistically high. Once they attempt regular activity and encounter unanticipated barriers to meeting their activity goal, their self-efficacy decreases. This high baseline self-efficacy phenomenon suggests measurement issues in need of future study. In addition, these findings suggest that physical activity interventions teach women strategies to anticipate and overcome barriers to activity and avoid lapses (Robbins et al., 2001).

Summary

The research studies reviewed for this section of the chapter indicate that high self-efficacy scores are positively associated with maintenance of activity behavior for women already engaged in physical activity. Self-efficacy is low for sedentary women in general, but high for sedentary people enrolling in a physical activity intervention. This suggests that public health messages should attempt to increase self-efficacy for physical activity in sedentary women so that they will feel confident in their ability to begin a program of physical activity. Interventions should include a component to help women anticipate and overcome barriers in order to keep self-efficacy for activity high.

Although members of this population—low-income midlife and older women—are among the most sedentary and thus, at highest risk for disabling conditions related to inactivity, there is a lack of published theory-testing research with this population. The published research is in an early stage, consisting of mainly exploratory and descriptive studies to identify determinants of physical activity in various populations. More theory-based intervention studies are needed to examine the relationships between the most salient concepts and the initiation and maintenance of physical activity in this vulnerable, underserved population.

Instrumentation and Measurement Issues

Three main instrumentation and measurement issues are important to address in the conduct of research in the area of physical activity in low-income women. The first concerns measurement of the self-efficacy construct. Self-efficacy, or an individual's perceived confidence to engage in a specific behavior, is one of the strongest correlates of physical activity (King et al., 1992; Sallis & Owen, 1999). Assessments of self-efficacy must examine confidence in the ability to perform the behavior regularly, and in the face of barriers (Bandura, 1997a, 1997b). Much of the physical activity research published to date does not adequately measure self-efficacy because these scales do not assess confidence in the face of barriers. In the researcher's preliminary work (pilot study), a widely used self-efficacy scale was adapted for use. Through the experience administering the scale and examining the data, it was determined that the scale does not accurately measure the self-efficacy construct—it does not assess confidence in the face of barriers. For this reason, the measurement of self-efficacy became the focus for the

dissertation study. Analysis of the self-efficacy scale used in the pilot study is presented in the section entitled: Measurement of Self-Efficacy—Construct Validity.

The second issue concerns the effect of culture on instrument validity. Language, literacy issues, instrument response format, and response tendencies must be considered when using instruments with this population (Lange, 2002). These issues are discussed in the section entitled: The Effect of Culture and Ethnicity on Validity.

The third issue concerns the accuracy and reliability of measurement of physical activity behavior. Several concerns exist regarding measurement of physical activity behavior, including the effect of self-report of physical activity and the unique aspects of measuring women's activity, especially among low-income and ethnic minority women. These issues are discussed in the section entitled: Measurement of Physical Activity Behavior.

Measurement of Self- Efficacy—Construct Validity

As previously discussed, instrumentation and measurement issues encountered in the researcher's preliminary work (pilot study) led to the focus on the measurement of self-efficacy for the dissertation study. The following section provides an analysis of the self-efficacy scale used in the pilot study. The results of this analysis provided the information to develop the Self-Efficacy to Walk for Health Scale for use in the dissertation study.

The self-efficacy scale used in the researcher's preliminary work (pilot study) was based on the self-efficacy scale used in the Chronic Disease Self-Management Program (CDSMP) (Lorig et al., 1996). Development and testing of the original CDSMP

measures, including estimates of reliability and validity, are discussed in detail in the publication *Outcome Measures for Health Education* (Lorig et al.). See also Chapter 3 of this dissertation for a description the instruments used in the pilot study. The purpose of this section is to discuss measurement issues for the self-efficacy construct, specifically as it relates to Lorig's *Self-Efficacy to Exercise Regularly* scale that was adapted for the pilot study. First, the self-efficacy construct is conceptually defined based on the work of Albert Bandura, the original developer of this construct. Development of the Lorig et al. *Self Efficacy to Exercise Regularly* scale, including estimates of its validity, is discussed. The scale is evaluated to determine how well it reflects Bandura's conceptual definition of self-efficacy. Second, its reliability is discussed.

Self-efficacy is a measure of an individual's perception of his or her confidence to initiate and maintain a behavior (Bandura, 1977, 1986, 1997a, 1997b). The self-efficacy construct has been defined in great detail by Bandura, and his conceptual definitions provide specific guidance and direction to researchers interested in self-efficacy scale development. According to Bandura (1997b),

1. Self-efficacy is situation-specific, not a global trait. Scales of perceived self-efficacy, therefore, must be specific to the particular area of concern (also called the domain of functioning).

2. An assessment of self-efficacy to change behavior involves examining all the factors over which an individual can exercise some control. Therefore, a comprehensive conceptual analysis of the domain of functioning is necessary to ensure that all known

determinants of the domain are included in the scale. In other words, it is important to determine what it takes to succeed in a given pursuit.

3. Self-efficacy is a measure of the perceived capability to perform the behavior regularly and in the face of various impediments (barriers). Barriers to behavior change for the domain of functioning are identified through qualitative methods. These barriers should be built into the self-efficacy scale so that individuals can rate their ability to perform the behavior under various conditions (e.g., in the rain, when they're tired, when there is something else more interesting to do) and to avoid ceiling effects.

4. Although self-efficacy is a determinant of intention, the construct is concerned with perceived capability, not intention. Self-efficacy items should be written in terms of *can do* (*can* is a judgment of capability) rather than *will do* (*will* is a statement of intention). Questions should also be phrased to determine the individual's confidence for performing the behavior as of now, rather than what they expect to be capable of doing in the future.

5. The standard construction of the response scale for self-efficacy is a 100-point scale, ranging from 0 ("cannot do") through 100 ("certain can do"), with 10-unit intervals, indicating intermediate degrees of confidence. Single use intervals ranging from 0 to 10 are also used.

Lorig et al. developed the *Self-Efficacy to Exercise Regularly* instrument for use in the Chronic Disease Self-Management Program (CDSMP) (Lorig et al., 1996), based on Social Cognitive Theory (Bandura, 1977). This theoretical framework was chosen by Lorig and colleagues after their work with an Arthritis Self-Management Program

demonstrated that participants reporting improvement in their pain also reported increased control over their arthritis symptoms. Conversely, participants with no pain improvement were more likely to report that nothing could be done about their arthritis. Lorig et al. operationalized these feelings of personal control as perceived self-efficacy to manage arthritis symptoms. Further testing of self-efficacy in people participating in the Arthritis Self-Management Program confirmed that increases in self-efficacy were associated with improvements in pain control.

Lorig et al. (1996) point out that, in people coping with chronic disease, self-efficacy is more than knowing how to manage symptoms; it "is a belief in one's ability to use those skills in realistic contexts, and a belief that the use of the skills will produce desired outcomes" (p. 6). In describing self-efficacy, Lorig et al. referred to Bandura:

> According to self-efficacy theory,
>
> 1. The strength of belief in one's capability to do a specific task or achieve a certain result is a good predictor of motivation and behavior.
> 2. One's efficacy belief can be enhanced through performance mastery, modeling, reinterpretation of symptoms, and social persuasion.
> 3. Enhanced self-efficacy leads to improved behavior, motivation, thinking patterns, and emotional well-being (Bandura, 1986). (pp. 5-6)

Lorig's method of scale construction resulted in the following items that comprise her *Self-Efficacy to Exercise Regularly* scale:

> How confident are you that you can ...

1. Do gentle exercises for muscle strength and flexibility three to four times per week (range of motion, using weights, etc.)?
2. Do aerobic exercise such as walking, swimming, or bicycling three to four times each week?
3. Exercise without making your symptoms worse? (Lorig et al., 1996, p.41)

These three items are measured on a 10-point Likert scale using the anchors *not at all confident* and *totally confident* at each end of the scale. Participants are asked to "circle the number that corresponds to your confidence that you can do the tasks regularly at the present time" (Lorig et al., p. 41). The scale is scored by calculating the mean of the three items; the possible range of scores is 1 to 10, with higher scores indicating greater self-efficacy. If more than one item is missing, the scale's value is reported as missing. Of note, with respect to conceptual validity of this self-efficacy scale, there are no items that deal with barriers to performing these activities.

Validity and Reliability of Lorig's Self-Efficacy to Exercise Regularly Scale

Measurement analyses for Lorig's *Self Efficacy to Exercise Regularly* scale were conducted with a questionnaire from 1,130 individuals enrolled in the CDSMP or the comparison control group (Lorig et al., 1996). The majority of Lorig's sample were female (68%), Anglo American (91%), and well-educated (M= 14.8), with a mean age of 64.4 years; 75% rated their health as fair or good.

Validity refers to whether a tool measures what it is intended to measure. For Lorig's *Self Efficacy to Exercise Regularly* scale, validity was established through item convergent and discriminant validity tests (conducted as part of multitrait scaling

analyses). Multitrait scaling tests item discrimination across scales, allowing items to be evaluated with respect to how well they represent a particular construct relative to other constructs (Stewart, Hays, & Ware, 1992). Lorig et al. (1996) performed multitrait scaling analyses to determine whether the parallel exercise self-efficacy and exercise behavior scales were unique and whether summation of the three exercise self-efficacy items to derive a score was appropriate. The correlation between thetwo exercise self-efficacy scores was .26 for the stretching and strengthening item and .37 for the aerobic exercise item. Thus it was determined that the scales were independent. The range of item-scale correlations for the *Self-Efficacy to Exercise Regularly* scale was .68 to .71. Because the minimum correlation established by Lorig was .40, she determined that the scale met the criteria of item convergence. According to Jacobson (1997), validity correlations of .40 to .60 are satisfactory. Lorig et al. (1996) concluded that the multitrait analysis criteria established by Stewart et al. (1992) were met and, therefore, evidence of validity was established. However, in retrospect, construct validity with respect to Bandura's criterion that items should reflect barriers was not met.

Reliability refers to the consistency of the score, or the extent to which scores are free from random error. The reliability coefficient is an estimate of the proportion of total variance that is systematic (true score variance) rather than error variance. A reliability coefficient of .70 is acceptable for an instrument in the early stages of development (Pedhazur & Schmelkin, 1991; Stewart et al., 1992). For Lorig's *Self-Efficacy to Exercise Regularly* scale, internal-consistency reliability (Cronbach coefficient alpha) was estimated at .83 and ten-day test-retest reliability correlation, using

a subset of the original sample (*n*=51), was .86. These are adequate reliability estimates for this instrument. Although the obtained mean score of 6.30 (SD=2.70) is slightly skewed, with subjects reporting high self-efficacy, Lorig et al. reported that no floor or ceiling effects were observed in this primarily Anglo American, well-educated sample.

Summary

The *Self-Efficacy to Exercise Regularly* scale demonstrated acceptable reliability and divergent validity in the large sample of participants in the CDSM program or those enrolled in the comparison-control group. However, because Lorig's sample was primarily well educated and Anglo American, it was not known whether the measures would perform similarly with those with less education, with members of other racial or ethnic groups, and when using the term "physical activity" instead of exercise.

Knowledge gained through the process of conducting the pilot study and further review of the literature suggests that validity is a problem; for example, the content of two of the scale items is ambiguous. Item one asks about the respondent's self-efficacy to do gentle exercises for muscle strength and flexibility (range of motion, using weights, etc.) while item two asks about doing aerobic exercise such as walking, swimming, or bicycling. It is entirely possible that asking about two or three different types of exercise in the same question could be interpreted by respondents as ambiguous (DeVellis, 1991). These items would have more clarity if they were asked separately. For example, item one would be written as two questions: *How confident are you that you can do gentle exercises for muscle strength (using weights)?* and *How confident are you that you can*

do gentle exercises for flexibility (range of motion)?. Item two could be similarly reworded to be several separate items for each activity to increase clarity.

Although Lorig et al. (1996) clearly identified a theoretical model and defined the construct to be measured, the scale was not constructed with enough questions to adequately assess perceived self-efficacy for exercise. Specifically, self-efficacy is a measure of the perceived capability to perform the behavior regularly *and in the face of various impediments* (barriers), an important operational component that is missing. According to Bandura (1997b), barriers should be built into the self-efficacy scale so that individuals can rate their ability to perform the behavior (i.e., exercise) under various conditions (e.g., in the rain, when they're tired, when there is something else more interesting to do). Only one question of this type was included, i.e., *How confident are you that you can exercise without making your symptoms worse*? This is a serious omission that, in retrospect, calls to question the construct validity of the scale, i.e., its capability to measure the self-efficacy construct adequately.

Future work with the *Self-Efficacy to Exercise Regularly* scale should include expanding the number of items to address barriers to exercise and writing the questions so they are unambiguous (i.e., measuring only one type of activity per question). Pre-testing the appropriateness of the scale for individuals with less education and in ethnically diverse populations is also indicated.

The Effect of Culture and Ethnicity on Validity

The purpose of this section is to evaluate the effect of culture on the validity of research instruments used in studies with low-income women. Validity refers to whether

a tool measures what it is intended to measure. Culturally based considerations in the design of valid research instruments that may influence the findings of research with low-income women include language, literacy, and instrument response format issues and response tendencies (Lange, 2002). Because the majority of low-income women in the U.S. are African American and Hispanic (Institute for Research on Poverty, 2002; U.S. Census Bureau, 2002), issues especially relevant to these populations are emphasized in this section.

Language: Terminology and Conceptual Meaning

Research instruments developed for one culture (e.g., Anglo American middle-class men) may contain language that has different meanings in another culture (e.g., African American low-income women) or may use words or expressions that are offensive or ambiguous. For example, in physical activity research, the term "leisure time activity" is used in two large U.S. surveys, the National Health Information Survey (NHIS) and the Behavioral Risk Factor Surveillance System Survey (BRFSS) (National Center for Chronic Disease Prevention and Health Promotion, 2002), to differentiate between exercise, recreational, or physical activity (defined as leisure time activity), and occupational and housework activity. However, evidence suggests that the term "leisure time" does not have the same meaning to low-income and ethnic minority women (Airhenbuwa et al., 1995; Tortolero et al., 1999). The Tortolero study used focus groups with African American and Hispanic women, aged 35-75 years (N=84) to explore perceptions about physical activity and document the types of activities that may be culturally or gender specific. These investigators found that many of the existing

physical activity surveys contain language that is offensive or ambiguous. For example, the term "leisure time" was seen negatively by the participants because it is equated with laziness or wasting time, or as a luxury that many women do not have.

Women in the Tortolero et al. (1999) study also reported different patterns and types of physical activity than are typically measured in surveys. For example, women's activity is often unstructured, intermittent and includes activity done as part of the daily routine, such as housework and childcare, rather than as organized sports or exercise class participation. Wood's (2002) secondary analysis of data from the National Health and Nutrition Examination Survey (NHANES) III Household Adult Data File (1988-1994) described and compared exercise practices and preferences in Anglo American, African American, and Hispanic adult (age 17 and older) men and women with diabetes (*N*=1614). Wood found that women (44%) were more likely to report no exercise than men (27%). Wood suggests however, that the gender differences might be related to content validity issues since the NHANES III study does not examine occupational and household activity.

An exploratory meeting of 53 experts brought together by the Women's Health Initiative of the National Institutes of Health, identified important issues related to measuring physical activity in midlife, older, and minority women (Masse et al., 1998). The panel found that studies are often not designed to be sensitive to the characteristics of the sample, including understanding the women's sociocultural environment, the multiple roles of women within their family, and the impact of life events, such as the birth of a child, on types of activity performed. The panel also recommended that studies need to

account for the various dimensions of physical activity that include broadening the scope of measurement to include "spheres of physical activity" that may be more relevant to the lives of women and the purpose of the study, such as occupation, housework, shopping, caregiving, and social and church involvement (p. 61).

In addition, researchers need to measure moderate and intermittent activities, including unstructured and simultaneous activities. The panel members illustrated this issue through the following example: "… a woman may be scrubbing the floor; in the middle of this task, she runs downstairs to put in a load of laundry; a child who requires immediate attention then interrupts her" (p. 62). Researchers need to probe for the total amount of time spent doing household chores rather than estimating time spent in discrete household activities, as is currently the norm in measuring physical activity.

Finally, the Women's Health Initiative panel recommended that investigators a) conduct interviews, focus groups, and expert evaluation of survey instruments to assure the content and literacy level are appropriate; b) clarify definitions such as leisure activity, moderate activity, and exercise vs. physical activity; and c) develop strategies that build trust, decrease social desirability, and promote interest in the study.

Other language and literacy issues affecting instrument validity are related to conceptual meaning. Ahijevych and Bernhard (1994) administered the Health Promoting Lifestyle Profile (HPLP) to a sample of African American women age 18 – 69 years (N=187) and found that some respondents had trouble understanding the meaning of several HPLP questions. For example, the questions "enthusiastic and optimistic about life" and "like myself" needed further explanation. These investigators also found that

"the tool may have a middle-class bias that is inappropriate for poor people who have, for example, little or no time, desire, or energy to 'Attend educational programs on improving the environment,' one item on the scale" (p. 89). While the purpose of the study was not to examine the cultural relevance or the readability of the HPLP, these anecdotal findings are important to consider. For an instrument to be valid, it is essential that the concept the instrument is intended to measure has the same meaning for members of the target culture (Lange, 2002).

In summary, language issues that affect validity of research instruments include the use of culturally appropriate language, that is, using words and phrases that accurately reflect the concept of interest and are meaningful, relevant, and conceptually understood by participants in ways similar to those intended by the researcher. An important concern for the researcher is whether a tool can adequately measure low-income women's experiences, attitudes, and practices. Sensitivity to ways to ameliorate these validity problems is important. Researchers and research assistants who are members of the target community can provide insight into the culture of the target population. Focus groups can also be used to explore conceptual meanings, as well as the best terms to assure conceptual congruence and ensure instrument validity. The next section continues this discussion on the effect of culture on instrument validity and design, including issues of literacy.

Literacy

Low-income women generally have lower education and literacy levels; these participant characteristics can affect validity. Weinrich, Boyd, and Powe (1997) suggest

that existing tools can be adapted for socioeconomically disadvantaged populations by lowering the literacy level, changing wording, attending to issues of social desirability, examining response options, and shortening instruments.

Because years of schooling does not always correspond with reading ability and literacy, it is recommended that reading ability be assessed from a random sample of the study target population prior to finalizing the instruments (Weinrich et al., 1997). In addition, the literacy level of the instrument can be measured by application of a readability formula such as SMOG (French & Larrabee, 1999). Formatting instrument questions and directions in larger print can also facilitate readability for older individuals and for people who need, but cannot afford, reading glasses (Hendrickson, 2003).

Low-income, low-literate women may be embarrassed about their problems reading and may even try to hide it. Researchers should make every effort to create an environment where respondents feel safe, accepted, and free to admit confusion if they don't understand a word, phrase, or the response format (Weinrich et al., 1997). If a participant cannot read or see, then the instrument will need to be verbally administered. Attention to issues such as participant comfort and privacy are important to the collection of good research data. Data collection in the participants' homes may help them feel more relaxed, less rushed, and may provide more privacy. Although this represents a large investment of resources, it may be necessary and should be considered in the research budget (Bernal, Wooley, & Schensul, 1997). Ideally, one should avoid excluding participants on the basis of the data collection costs, since this would further marginalize an already vulnerable and underserved population.

Response Format and Response Tendencies Among Low-Income Participants

Visual analog scales placed in a vertical format may be easier for low-literate people to use since a vertical line is more easily representative as "more" (high, top) and "less" (low, bottom) (Waltz, Strickland, & Lenz, 1991). The vertical format is more frequently used in Mexico (S. Hendrickson, personal communication, January 15, 2003) and therefore may be more familiar and acceptable to Mexican American respondents. Hispanic people also tend to select high or low responses on rating scales, referred to as extreme responding (Flaskerud & Winslow, 1998; Lange, 2002), but viable solutions for this tendency were not found in the literature reviewed. Further research is needed to define optimal response scale characteristics in the Hispanic population (Lange), and in other ethnic minority groups such as African American.

Response Set Bias

Response set bias occurs when participants provide responses independent of item content. Two response set styles, social desirability and acquiescence, may be more common among low-income populations participating in research (Lange, 2002; Pedhauzer & Schmelkin, 1991; Weinrich et al., 1997;). Social desirability refers to the conscious or unconscious tendency of a respondent to place him or herself in a positive light to the researcher (Streiner & Norman, 1995). Acquiescence or "yeasaying" refers to the tendency of respondents to agree with questions or statements. This "may be the result of cultural politeness, social desirability, the reimbursement offered for participation in the study, or the shock value of the response of the interviewer" (Flaskerud & Winslow, 1998, p. 75). Although the increased tendency for social

desirability and acquiescence among low-income participants has been observed, the reasons for this are not well documented. One possible explanation is that the low-income/low-literate respondent may be attempting to compensate for or hide an inability to read or comprehend the researcher's questions. The respondent may also be embarrassed by their social and economic condition in comparison to the researcher and either consciously or unconsciously make attempts to be accepted by the researcher. Yeasaying may also reflect the need for acceptance or may be related to the perception that agreeing with answers is what is expected and desired by the researcher. Every effort should be made to reduce the perceived power differential between the researcher and the respondent, and make the respondent feel accepted and valued. The greater the comfort level and perceived trust of respondents, the more likely they will provide truthful information and ask for clarification when it is needed (Earl & Penney, 2001). One method to increase trust is to stress to participants that there is no right or wrong answer, and that learning about participants' true lives is most important to the study. In this way, participants not only feel valued, but that by honestly answering questions they are contributing to the understanding of the lives of people like themselves.

One method to minimize response set is to reverse-code items; that is, word some of the questions in a negative form. However, for people whose primary language is not English or those who have low literacy, this format can be time-consuming to read and can lead to participant confusion and frustration (Bernal et al., 1997). Naranjo and Dirksen (1998) found that English-speaking Hispanic participants had difficulty with negatively posed questions, such as, *Because of my illness I cannot plan for the future*.

This type of question creates a double negative for those who "think in Spanish:" "Yes, I cannot plan for the future and No, I cannot plan for the future" (p. 28). The authors suggest rewording the question as I can plan for the future to permit a definite yes or no response.

The pilot work for this dissertation indicated that including a question at the end of the instrument, such as, *Is there anything else you'd like say about this*?, gives participants an opportunity to explain their answers in their own words, which can lead to clarifying their responses. Another possible strategy to reduce response set, especially acquiescence and social desirability, is to employ research assistants from similar social and cultural backgrounds to assist in data collection. As previously mentioned, collecting data in the home environment may allow participants to feel more comfortable and in control and therefore they may be less inclined toward yeasaying, social desirability, or other response set biases.

According to Flaskerud (1988), cultural preference and familiarity with a type of response format can affect validity and can be considered another indication of response set bias. The Likert-type response option format seems to be especially problematic (Flaskerud; Weinrich et al., 1997). In these rating scales, when the number 1 is used to represent strongly agree and a larger number, for example 5, is used to represent strongly disagree, it is confusing for Hispanic respondents who tend to interpret a higher number with a more favorable choice (Bernal et al., 1997; Naranjo & Dirksen, 1998). Use of letters or symbols instead of numbers for response options would circumvent this

tendency (Lange, 2002), but a simpler solution may be to design the scale so that higher numbers represent the more favorable choice (Bernal et al.).

Likert-type response scales generally range from 2 to as many as 25 options; however the recommended number of response options is 5 to 9 points (Pedhauzer & Schmelkin, 1991). Bernal et al., (1997) found that in a low-literate Puerto Rican sample, a scale with more than 4 points created confusion in the respondents. Laffrey and Asawachaisuwikrom (2001) also noted that Mexican American women find Likert-type rating scales difficult and tended to answer yes or no rather than use the 5-point response choices. Therefore, these researchers broke down their 5-point self- efficacy scale first into 2 dichotomous options, confident and not confident. Then, if the woman responded that she was confident, the investigator probed about level of confidence to obtain a score between 1 and 5. Using this method, most of the women understood the response options after completing 5 to 6 items. Lange (2002) also suggests using this method as a way to overcome unfamiliarity with Likert-type scales but cautions: "it is best to use such coaching on sample questions that will not become part of the data to be analyzed so as to avoid unduly influencing the responses of interest to the study" (p. 413).

Measurement of Physical Activity Behavior

The third instrumentation and measurement issue in physical activity research with low-income women concerns the accurate measurement of physical activity behavior. These issues include the importance of using instruments that collect information on all aspects of physical activity in a woman's life (content and construct validity) and issues related to physical activity self-report.

Physical Activity Instruments for Use with Low-Income, Ethnic Minority Women

An exploratory meeting of 53 experts brought together by the Women's Health Initiative of the National Institutes of Health, identified important issues related to measuring physical activity in midlife, older, and minority women (Masse et al., 1998). The panel found that studies are often not designed to be sensitive to the characteristics of the sample, including understanding the women's sociocultural environment, the multiple roles of women within their family, and the impact of life events, such as the birth of a child, on types of activity performed. The panel also recommended that studies need to account for the various dimensions of physical activity including broadening the scope of measurement to include "spheres of physical activity" (p. 61) that may be more relevant to the lives of women and the purpose of the study, such as occupation, housework, shopping, caregiving, and social and church involvement. In addition, researchers need to accurately measure moderate and intermittent activities, including unstructured and simultaneous activities.

Ainsworth, Irwin, Addy, Whitt, and Stolarczyk (1999) examined data from detailed physical activity records (completed in a six-month period, every other month for 3 consecutive 4-day periods, and including all activities performed including occupational, childcare, housework, gardening, etc.) from 141 African American and Native American women age 40 and older. For this sample, 63-70% met the current American College of Sports Medicine (ACSM) recommendations to accumulate 30 minutes of moderate activity most days of the week (defined here as 3 out of 4-day recording period). "The five most frequent moderate intensity activities recorded in the physical activity records

were household chores, walking for exercise, occupational tasks, child care, and lawn and garden activities" (p. 808). These findings illustrate that physical activity surveys for older minority women should include, as essential content, occupational and home-related activities to avoid underestimating physical activity rates.

In 2001, a change was made to the Behavioral Risk Factor Surveillance System (BRFSS) (Centers for Disease Control [CDC], 2003), to include health-related lifestyle activity questions that measure moderate and vigorous household and transportation-related activities that are done for at least 10 minutes at a time. According to CDC, these changes were made in response to revised recommendations from CDC and ACSM. The revised guidelines state that health benefits could be gained from a minimum of 30 minutes of moderate activity most days of the week; previous guidelines called for vigorous-intensity activity, 3 or more days a week (Pate et al., 1995). In the 2001 BRFSS, moderate intensity activities are defined as "activities such as brisk walking, vacuuming, gardening, or anything else that causes small increases in heart rate" and vigorous activities are defined as "running, aerobics, heavy yard work, or anything else that causes large increases in breathing or heart rate" (CDC, p. 766). These content and operational definitions seem to add an increased measure of what to count as an activity and enhance consistency in reporting.

Using these new questions, the percent of U.S. adults engaged in activities that met the physical activity recommendations rose from 26.2% in 2000 to 45.4% in 2001. Physical inactivity, measured by the same question, changed little from 2000 (27.4%) to 2001 (26.0%). In contrast, 63 – 70% of the sample of minority women age 40 and older

in the Ainsworth et al. (1999) study (discussed above) met the ACSM physical activity recommendations. One reason for this difference could be that Ainsworth et al. captured participants' occupational activity whereas the BRFSS does not. The Ainsworth et al. participants were also minority women and these women may have more physically demanding occupations compared to the general population surveyed through BRFSS. The differences in the results of these two studies highlight the importance of examining all aspects of physical activity (content validity issue) in a woman's life to get a more consistent measure of activity level from participants.

The most recent published research, and the largest study on physical activity with ethnic minority, low-income women, is the Women's Cardiovascular Health Network Project (Eyler, Matson-Koffman, et al., 2003). The purpose of this 3-year, multisite project, funded by CDC and The Robert Wood Johnson Foundation, is to identify factors influencing physical activity among ethnic minority and low-income women aged 20 – 50 years (N = 4122). The 2001 BFRSS physical activity questions were used to assess physical activity in this study. The authors acknowledged that the reliance on self-report data was a limiting factor, but observation and/or biomechanical measurement were not feasible due to the size of the sample. This potential bias, according to Eyler, Matson-Koffman, et al., was addressed by "using one of the most valid and reliable physical activity assessments available for the general population" (p. 8). While the 2001 BFRSS questions capture more of the activities that low-income women engage in, this physical activity assessment does not measure all the "spheres of physical activity" (Masse et al.,

1998, p. 61) recommended by the Women's Health Initiative Expert Panel. Issues related to self-report are discussed next.

Physical Activity Self-Report

Whether physical activity assessments are self-administered or interviewer-administered, both require self-report and, therefore, have the potential for recall bias (Freedson & Miller, 2000). Study subjects tend to overestimate the amount of their physical activity (Klesges et al., 1990; Sims, Smith, Duffy, & Hilton, 1999). In addition, subjects are more likely to accurately recall vigorous, structured activity than routine, moderate activity such as walking (Bassett, 2000). According to Durante and Ainsworth (1996), factors that affect recall bias include the time between the activity and the recall occasion; the perceived importance of the activity to be recalled; the social desirability of the responses; the personal characteristics of the respondent (e.g., age, gender, ethnicity); and the behavior of the interviewer and the interview techniques.

Because there is little published physical activity research with low-income, older women, measurement challenges specific to this population have not been documented in the research literature. However, as Masse et al. (1998) discuss, physical activity surveys should examine all aspects of physical activity in a woman's life, including unstructured and intermittent activity; this would make self-report even more difficult. Masse and colleagues report that the Women's Health Initiative Expert Panel perceived this issue as a "significant challenge for researchers and respondents. Researchers need new and creative strategies to help respondents recall these activities while maintaining parsimony of the survey" (p. 65). Triangulation may serve as the answer to this particular problem

posed by this “mono-operation bias” or “mono-method bias” (Burns & Grove, 1997, p. 232).

Social desirability, i.e., the conscious or unconscious tendency of a respondent to place him or herself in a positive light to the researcher (Streiner & Norman, 1995), may also affect accurate self-report. For example, in some cultures it may not be acceptable for women to run or play sports and get sweaty; therefore women who do these activities may not report them (Masse et al., 1998). Conversely, some women may over-report activity because they believe they should be more active (Masse et al.). A detailed discussion of the effects of culture on instrument validity can be found in an earlier section of this chapter.

The use of an objective measure of physical activity offers a solution to the problem of recall bias and addresses the need to accurately measure physical activity behavior. The most commonly used objective measures of physical activity are pedometers and accelerometers. Pedometers count steps during a specified period of time. Small and low-cost, pedometers provide a good objective measure of walking behavior, provided they are calibrated to step length. Another advantage of pedometers is that they can be used as a form of self-monitoring for participants with specific walking goals, such as number of steps per day, and can also be used as a motivational tool in intervention studies (Freedson & Miller, 2000). The pedometer, however, has limited application for measuring habitual behavior for several reasons: it can store a limited amount of data; it cannot measure patterns of activity; it does not measure upper body motion; and it is not accurate at very slow or fast walking speeds (Freedson & Miller).

Accelerometers measure both the amount and intensity of movement and can also store data on the temporal patterns of activity. Like pedometers, these devices are small; however they are more costly. Accelerometers can be uniaxial or triaxial: uniaxial accelerometers measure acceleration on a single plane and can measure movement in the trunk and/or limbs; triaxial accelerometers measure acceleration in the vertical, horizontal, and mediolateral planes.

In two studies comparing the accuracy of pedometers and accelerometers, investigators found that pedometers correlated well (r=0.80-0.93) with accelerometers (Bassett et al., 2000; Leenders, Sherman, & Nagaraja, 2000). The decision about whether to use a pedometer or accelerometer is best determined by the purpose of the study and how the measurement will be used. For example, if walking behavior is the outcome to be measured, then a pedometer would be the objective measure of choice. However, if patterns and intensity of activity over longer periods of times such as a week or longer are needed, then an accelerometer would be preferable (Freedson & Miller).

Chapter Summary

In summary, this chapter presented a review of the literature for the three main areas of concern for this dissertation: (1) physical activity in midlife and older, low-income women; (2) self-efficacy for physical activity; and (3) instrumentation and measurement issues relevant to the study of self-efficacy and physical activity in low-income, ethnically diverse populations.

The literature review on physical activity in midlife and older, low-income women summarized the determinants of physical activity in this population and the

barriers to participation in physical activity. The identification of determinants and barriers is an essential first step in the design of tailored interventions to meet the needs of this high-risk population. The identification of barriers is also the first step in self-efficacy scale development. The barriers to participation in physical activity identified in this review were used as a starting place for the development of a Self-Efficacy to Walk for Health Scale for use with midlife and older, low-income, African American women, the main focus of the dissertation study.

Next, a review of recent research testing the self-efficacy construct on physical activity among women at various income levels was presented. This discussion provided evidence for the theoretical relationship between self-efficacy and physical activity and highlights the need for more theory-testing research in this area, particularly with low-income, ethnically diverse women.

Finally, a summary of three main areas of concern in the area of physical activity and measurement of self-efficacy in midlife and older, low-income women was presented. These instrumentation and measurement issues were focused on: (a) measurement of the self-efficacy construct, (b) effect of culture and ethnicity on validity, and (c) measurement of physical activity behavior. The discussion of the measurement of the self-efficacy construct provided an analysis of a widely used self-efficacy scale and argued for the need to develop a valid and reliable self-efficacy for physical activity scale for use with low-income, ethnically diverse populations.

The effect of culture on the validity of research instruments used in studies with low-income women was discussed next. The importance of language, literacy, and

instrument response format issues and response tendencies were explored in this section as well as strategies to address these potential threats to validity. This information was used to guide the process of developing a valid and reliable instrument to be used with a low-income, ethnically diverse population.

Issues concerning the measurement of physical activity behavior concluded the instrumentation and measurement section. This discussion highlighted the challenges in accurately measuring women's physical activity, especially for midlife, older, and minority women who often do not share the same patterns of physical activity of younger women and men. The validity issues related to physical activity self-report were also summarized in this section.

While the instrument and measurement section explored the range of issues in this area, the focus of this dissertation is exclusively on the valid and reliable measurement of self-efficacy for physical activity in midlife and older, low-income women. Because of the many issues surrounding the definition and measurement of physical activity, it was decided to concentrate specifically on one type of physical activity—walking. Walking is the most commonly reported type of physical activity among adults (USDHHS, 1996) and walking for exercise is prevalent among people with low family income (Siegel, Brackbill, & Heath, 1995). For these reasons, walking was chosen as the target behavior for the scale development. The term "walk for health" was coined by the researcher in an attempt to make the concept clearer, easier to read and comprehend, and more socially acceptable than the other more commonly used terms such as "walk for exercise" or "leisure-time walking."

CHAPTER 3: PRELIMINARY WORK—PILOT STUDY

The pilot study was funded by The University of Texas at Austin, School of Nursing, Center for Health Promotion/Disease Prevention Research, 9/1/99-5/31/04, grant # 5P30 NR05051-02, Alexa K. Stuifbergen, PI. The study is briefly described in this chapter because it was central to identifying the instrumentation and measurement issues for this dissertation.

Sample

Low-income (2001 federal income guidelines of 200% of poverty), overweight (BMI $\geq$25) women, age 40 and older, were recruited from a variety of local city and community clinics, neighborhood centers, and churches. Fliers in neighborhood grocery stores, beauty parlors, and pharmacies were also used to recruit participants. A stipend of $50 was offered for participation in the four Self-Management Program (SMP) sessions (the intervention) and for completion of all the study questionnaires. Each volunteer was screened by a Registered Nurse/Investigator to establish eligibility. This initial pilot study was limited to English speaking women, as program materials were in English. The study requirements were explained and informed consent was obtained. If a participant showed any indication that she could not read, the materials were read to her.

The original pilot study design called for random assignment of participants into either the experimental group (*n*=15) to receive the intervention right away (July 2000), or the wait-list control group (*n*=15), to receive the intervention 6 months later (January 2001). However, as recruitment proceeded it became clear that this was not feasible. Some women were unable to start the intervention in July and could only attend if they

could be in the January group; others would only attend if they could be in the same group as their friends. In addition, other unforeseen circumstances affected the composition of the groups. For example, 5 participants were from the same church and relied on the church van for transportation to the program site; therefore, all 5 requested to be in the July (experimental group). At the last minute, 3 of the 5 women called to say that a church function would cause them to miss the first session. Rather than have these 3 participants miss the crucial introductory first session, all 5 were asked to attend the January session instead. This left the experimental group (scheduled for July intervention) with only 7 participants and the wait-list control group (scheduled for January intervention) with 10 participants.

To increase sample size, a second experimental group (n=12) was recruited in December 2001 to receive the intervention in January 2002 under the same conditions as the other groups (first experimental group and wait-list control group). These 2 experimental groups did not differ significantly with regard to age, BMI, waist circumference, and educational attainment. Therefore they were combined into one group (n=17) for purposes of subsequent data analysis. Consequently, a total of 29 women entered the study; 19 in the two experimental groups (July and January) and 10 in the wait-list control group (January). Figure 3.1 depicts the flow of recruitment, data collection, and receipt of intervention for the pilot study. There was little attrition for the study: Two control group participants and one experimental group participant did not complete the study; and one experimental group participant had incomplete data. Therefore, a total of 25 participants completed the entire study and all the questionnaires.

The ethnic/racial composition of these 25 participants follows: 14 African American, 6 Hispanic, 4 Anglo American, and 1 other (Anglo American and Hispanic). Comparative data at enrollment data for the participants are presented in Table 3.1. Although the control group had slightly higher BMIs, there were no significant differences between the experimental and control groups with regard to BMI, waist measurement, age, years of education, Self-Rated Health, or depressive symptoms (CES-D).

Figure 3.1:

Flow of recruitment, data collection, and receipt of intervention for the pilot study

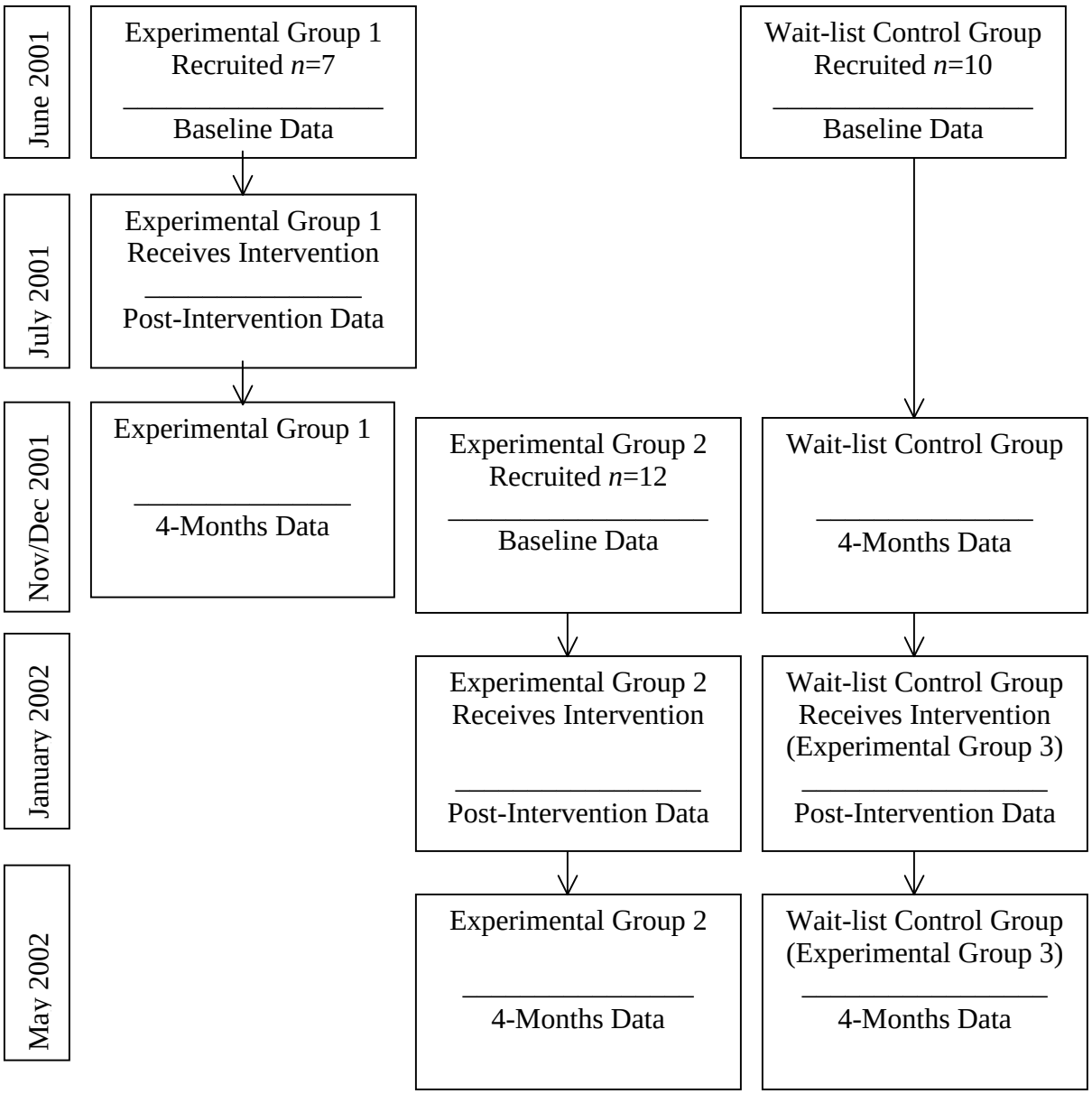


Table 3.1: Experimental and Wait-list Control Groups, Comparative Data at Enrollment

	Experimental[1] *n*=17 Mean (sd)	Wait-list Control[2] *n*=8 Mean (sd)	F	sig
BMI	36.5 (9.4)	43.9 (7.1)	3.80	.06
Waist (in)	43.8 (6.9)	47.9 (2.8)	2.24	.15
Age	51.7 (10.3)	49.6 (7.4)	0.26	.61
Education (yrs)	13.6 (4.1)	13.3 (1.5)	0.06	.81
Self-Rated Health	2.5 (0.9)	2.4 (1.1)	0.05	.82
CES-D	13.9 (10.3)	19.7 (7.7)	2.00	.17

[1] Combines July (*n*=7) and January (*n*=10) Experimental Groups.

[2] Wait-list Control received intervention in January.

Procedures

The pilot study was conducted in the early evening in two community center locations in Austin, Texas, convenient to the participants. Both locations were quiet and private; tables and chairs were placed in an open square to facilitate communication and provide ample area for participants to take notes. Four peer leaders (women from similar social and cultural backgrounds) for the program were recruited through a local network concerned with meeting the health needs of people of color and received a $100 stipend for their participation in leading each of the 3 groups. Study investigators trained the peer leaders in two, two-hour sessions in which program objectives were discussed and materials were reviewed. The peer leaders suggested changes to the program and ways to make the program more socially, ethnically, and culturally appropriate. For example, the peer leaders suggested the use of music, poetry, and Bible stories to make key points. Each peer leader was responsible for leading one session, but other leaders contributed to the sessions when they had relevant contributions. All the peer leaders assisted the women during activities, for example, when writing action plan and goals.

Instruments

Descriptive data were obtained from participants by a Registered Nurse (RN)/Investigator at the time of enrollment into the study: age, race/ethnicity, years of schooling, household income, number of household members, hours engaged in paid and unpaid work in and outside the home, medical diagnoses, current medications, name of clinic/physician, source of health insurance, and self-reported height. In addition, the RN/investigator measured weight, waist circumference, blood pressure, and heart rate.

The Physical Activity Readiness Questionnaire (PAR-Q) (Canadian Society for Exercise Physiology [CSEP], 1994) was also verbally administered by the RN/Investigator. The PAR-Q assesses medical conditions (e.g., hypertension, cardiac disease) that would require physician approval before beginning an exercise program. When a participant responded "yes" to any of the questions on the PAR-Q, a letter was sent to her physician requesting approval to participate. Of the 29 study participants, 17 required physician approval letters. The Center for Epidemiological Studies—Depression scale (CES-D) (Radloff, 1977) was either self-administered by the participant or verbally administered by the RN if the participant was unable to read or had difficulty understanding the questions.

Physical activity and health-related data were collected using a questionnaire comprised of the following scales (Appendix A): Self-Rated Health (National Center for Health Statistics [NCHS], 1991), Stage of Change for Physical Activity (Prochaska, DiClemente, & Norcross, 1992), and Psychological Well-Being (Stewart et al., 1992). Alpha coefficient reliabilities for all measures are provided in Table 3.2, as well as values for baseline administration of the modified instruments with the 29 study participants. The questionnaire took between 1 to 1 1/2 hours to complete, depending on the number of questions the participant asked and the participant's reading level.

Self-Rated Health is a single-item scale that rates health as excellent, very good, good, fair, or poor. Stage of Change measures readiness to engage in a regular moderate physical activity (defined as a total of 30 minutes of activities such as brisk walking, gardening, and heavy housecleaning, three to five days a week). Stage of Change

response options were: (1) having no intention, (2) intend to in the next 6 months, (3) intend to in the next 30 days, (4) currently engaged in activity for less than six months, and (5) currently engaged in activity for more than six months. Psychological Well-Being, a five-point Likert scale, is a summary index of depression, anxiety, and positive affect. It measures the amount of time in the past four weeks that one was a very nervous person, downhearted, depressed, nothing to look forward to, not in firm control of behavior, and not emotionally stable.

Paired measures of self-efficacy beliefs and self-management behaviors for (1) physical activity, (2) communication, (3) obtaining help, and (4) general self-management were adapted from instruments developed for the Chronic Disease Self-Management Program (CDSMP) (Lorig et al., 1996; 1999). The CDSMP instruments were modified by the investigator to focus on physical activity self-efficacy and self-management behaviors rather than chronic disease. A summary of these modified instruments on the study questionnaire follows (Table 3.2).

Table 3.2: Study Instruments: Reported Reliabilities from CDSP (Lorig et al.) and Coefficient Alphas for Instruments on Initial Administration to Experimental and Wait-List Control Group Participants (*N*=29).

Name of Instrument	Number of items	CDSMP Reliability[a]	Coefficient Alpha[b] (pilot study version)
Self-Rated Health	1	.92	n/a (single item)
Psychological Well-Being (MOS III)	5	.83	.64
Depressive Symptoms (CES-D)	20	.87	.88
Self-Efficacy: Physical Activity	2	.83	.73
Self-Efficacy: Communication (Lorig: 3 items--get information, communicate with MD)	4	.90	.76
Self-Efficacy: Obtaining Help	2	.77	.51
Self-Efficacy: Self-Management (Lorig: General Self-Efficacy)	4	.87	.96
Self-Management: Communication (Lorig: 3 items)	4	.73	.69 (3 items only)[c]
Self-Management: Obtaining Help	8	.70	.36 (2 items)
Self-Management	4	n/a	.97[d]
Self-Management: Physical Activity	5-6[e]	.56-.71 (T/R)	.70 (5-8 single items)

[a]Lorig reports of either Test/Retest(T/R)or Internal Consistency (IC). Reliability; reports are IC unless indicated as T/R.
[b]Calculated on first administration; n=29; instruments adapted, often with fewer items than original scale, and to refer to physical activity.
[c]Item 4 on 'working out differences' severely decreased the alpha and was eliminated.
[d]n= 12
[e]Lorig's original items were about aerobic exercise (5 items) and stretching/strengthening exercises (1 item)

For the self-efficacy scales on physical activity, communication, obtaining help, and self-management, the items are measured on a Likert scale using the anchors *not at all confident* (0) and *totally confident* (10) at each end of the horizontal scale. Each participant was asked to "mark an 'X' on the line below to describe your confidence that you can do the tasks regularly at the present time." The scale is scored by calculating the mean of the items; higher scores indicate greater self-efficacy. If more than one item is missing, the scale's value is reported as missing.

Self-Efficacy: Physical Activity (two items, α=.73) included one item about confidence to perform flexibility and strengthening exercises and one item about confidence to perform brisk walking, swimming and bicycling. These items were taken directly from Lorig et al. (1996) except that the term "physical activity" was substituted for "exercise" to better reflect the pilot program's emphasis on physical activity rather than exercise.

Self-Efficacy: Communication (two items, α=.76), according to Lorig et al. (1996), measured confidence for getting information about disease and treatment and communicating with a physician. For this study, Self-Efficacy: Communication was expanded to four items and included (1) getting information about being physically active (2) getting information about community resources for physical activity, (3) letting others know about one's physical activity goals, and (4) working out differences with others.

Self-Efficacy: Obtaining Help (α=.51) was changed from the original Lorig et al. question to make the items specific to physical activity. In this study, the two self-efficacy items read: (1) How confident are you that you can get family and friends to help

you with the things you need to be physically active? and (2) How confident are you that you can get help from resources in the community to be physically active?

Self-Efficacy: Self-Management (α= .96) asked about confidence to practice self-management skills and behaviors such as setting a physical activity goal, and making, keeping, and changing a physical activity plan.

For the scales on self-management behavior for communication, obtaining help, and general self-management, the items are measured using a six-point scale ranging from *never* (0) to *always* (5). Participants are also asked how often in the past month they practiced the specified behavior. The scale is scored by calculating the mean of the items.

Self-Management: Communication items (4 items, α=.69) asked participants how often they actually practiced these four behaviors in the past month. Item 4, working out differences with others, reduced the scale's alpha and was therefore eliminated (α= .58 before; α= .69 after). Comments made by several participants when completing the instrument in the presence of the investigator suggested that this item was difficult to answer; participants may not have had any differences with others in the past month. As a result, answering 'never' was truthful but misleading in calculating scores.

Self-Management: Obtaining Help (α = .36) was changed from the original Lorig et al. (1999) question to make the items specific to physical activity. The two self-management questions asked how often participants actually got help from family and friends and from resources in the community.

The general self-management behavior questions were found on the last two pages of the questionnaire and through a copying error were inadvertently left out of the packets for the experimental group 1 (*n*=7) and wait-list control group (*n*=10) baseline administration. Therefore the alpha reliability coefficient (α= .96) is based on a sample of 12 (experimental group 2).

Self-Management: Physical Activity (α= not available: single item measure, one administration) was measured using five items about performing physical activity, i.e., the number of minutes spent/week in flexibility and stretching exercises, walking, swimming, biking, and other physical activity such as heavy house or yard work (Lorig et al., 1996, p. 37). A five-point scale representing time spent in the activity during the past week included: none (0), less than 30 minutes/week (1), 30-60 min/week (2), 1-3 hours/week (3), and, more than 3 hours/week (4). The score is calculated by converting each category to number of minutes spent: 0=0; 1=15; 2=45; 3=120; 4=180. The total minutes spent in specific types of activity, as well as the total amount of activity, are then calculated. In addition at the end of every scale there is a comment section where participants can explain responses in their own words.

This entire questionnaire was completed several times over the course of the study by all three groups: prior to receiving the intervention (baseline), immediately following the intervention (post-intervention), and four months after baseline (four months). In addition, the wait-list control group (January 2002 group) completed the questionnaire one additional time, upon enrollment into the study while entering the wait-list. A postcard reminder was mailed to all participants at about 3 months after baseline to

remind them that the final questionnaire would soon be mailed to them, and to gain their cooperation in completing and returning it. The initial study design called for four-month follow-up questionnaires to be mailed to participants with a self-addressed, stamped envelope for return to the investigator. Despite numerous reminder phone calls, the return rate using this method was poor. In these cases, the investigator phoned participants and then met with them in their home or at their job to complete the final four-month questionnaire. For the final data collection period, all participants were visited in the home/job site to complete the questionnaire, thus ensuring a 100% return rate.

Approval for the pilot study was obtained from The University of Texas at Austin School of Nursing Departmental Review Committee for the protection of human subjects (Appendix B). Participants provided written informed consent prior to entering the study. The instruments were coded with a number to ensure confidentiality and kept in a locked cabinet in a limited-access, locked office.

Description of the Pilot Study Intervention: The Self-Management Program

The Self-Management Program (SMP) consisted of four two-hour sessions, offered once a week in the evening. They were led by the investigator-trained peer leaders who were encouraged to use a relaxed and interactive style of communication and to tailor the sessions to make them socially and culturally appropriate, as well as enjoyable. Each session's main points and activities were included in a personal notebook for every participant. This loose-leaf notebook contained printed program materials and handouts. Throughout the sessions, participants were encouraged to make any notes they wished in their notebook. The peer leaders' version of the curriculum contained reminders,

additional notes about key points to discuss and suggested activities for each session. A majority (99%) of the participants attended all four sessions. The sessions were entitled: (1) Getting Started as a Self Care Manager, (2) Increasing Physical Activity, (3) Communicating and Locating Resources, and (4) Staying Successful as a Self Care Manager. Each is described in more detail next.

Session One, Getting Started, focuses on making a commitment to a healthy lifestyle. The benefits of physical activity, the importance of making a commitment to increase physical activity, and various ways to make simple changes to incorporate more activity into daily life (such as parking at the end of the parking lot, taking stairs instead of elevators, etc.) are discussed. Self-management is introduced as a process for achieving physical activity goals and for having the power to spring back and get back on track after relapses. Self-management is introduced as a seven-step process (Lorig et al., 1999) for achieving physical activity goals. Leaders focus on the importance of making realistic goals and plans. Participants are assisted with developing their physical activity goal, creating a realistic action plan, and then determining their confidence to meet the goal. Peer leaders model how to use the action plans and the importance of monitoring what worked and what did not work, thereby stressing the ongoing cyclical nature of action plans. Each program participant leaves the first session with a written action plan that includes a physical activity goal and a method for monitoring the plan.

The use of a written action plan or contract provides cues to action. In this plan, specific behaviors are clearly identified. For a walking program, an action plan would include: what to do—walk; when—after work; where—at the track; how long—30

minutes. The contract also specifies rewards (or reinforcement) for making a behavior change. Reinforcement of behavior change through self-reward or positive feedback from others builds self-efficacy. The action plan also includes recording internal and external cues (self-reflection) for the behavior. The individual records whether the walking goal for the day was achieved and what cues influenced their behavior. This self-reflection allows the individual to modify the environment to support behavior change. For example, one may note that walking with a partner is more pleasurable than walking alone; future walks are then arranged with a partner.

Session Two, Increasing Physical Activity, focuses on examining the current level of physical activity and determining how to safely make increases in activity level. Physical activity goals and action plans are individually tailored based on current activity level and preference for certain activities. The session begins with a review of the previous week's action plan with group discussion about what had worked and what had not. Leaders model 'positive self-talk' to encourage a focus on accomplishments rather than failures. Modeling and reinforcement by peer leaders is a key component in building self-efficacy.

In Session Two, participants also complete the Barriers to Being Active assessment questionnaire (US Department of Health and Human Services [USDHHS], 1999) and review specific ways to overcome the most common barriers to physical activity. Peer leaders model strategies for overcoming the most common barriers. Leaders also focus on helping the women examine their current level of physical activity to determine where they can safely begin to make changes in their activity level. Physical activity goals and

action plans are individually tailored based on current activity level and preference for certain activities. Basic tips about stretching, warming up and cooling down for moderate physical activities, walking safely and monitoring intake of fluids are reviewed. Likewise, warning signs or adverse symptoms that may occur during or following moderate activities are also discussed. Participants then complete a second written action plan for the coming week.

Session Three, Communicating and Locating Resources, involves learning and practicing strategies for communicating activity goals to others and finding free or low-cost community resources to support physical activity. As in Session Two, Session Three begins with a review of completed action plans from the previous week. The peer leaders ask the women to share how they had rewarded themselves for their accomplishments and examine what revisions can be made to their plans to increase success. Again the leaders emphasize that participants continually reflect on their own action plans to improve them and focus on choosing activities that they are most confident about completing. Two new ideas are introduced during this session: (1) communication and (2) location of resources in the community. Strategies for positive self-talk, getting more information, and communicating one's needs to others are used to structure role-playing communication situations. For example, peer leaders focus on what to say and what to do when a walking partner phones to cancel joining them for their walk that day. Following several similar role playing situations, peer leaders lead a discussion on how to locate community resources for physical activity that are both affordable and accessible. Handouts describing a variety of available community resources for physical activity are

distributed and discussed. Participants leave this session with another written action plan, as well as a strategy for monitoring their physical activity over the next week.

Session Four, Practicing Self-Management, is focused on transitioning toward self-care maintenance and managing relapses for long-term success. Peer leaders begin, as they do at the start of every session, with a review of each of the women's action plans from the previous week. They emphasize the importance of self-reward when goals were met and reflecting back on their action plan when goals were not met. Participants are led through the action planning process again, this time with a focus on a physical activity goal for the future. Ways to anticipate the potential for relapse and to bounce back and get back on track are emphasized as an important part of becoming successful in self-management.

Analysis and Findings of the Pilot Study

Several sets of data analyses were completed on pilot study data. An alpha level of 0.05 was used for all statistical tests.

Comparisons of Experimental Group 1 (n=7) and Wait-List Control Group (n=10)

The experimental 1 and wait-list control groups were essentially the same on the study measures at baseline (Table 3.3) with the exception of two measures that approached significance: Psychological Well-Being (p = .08) and Self-Management: Obtaining Help (p = .07). Although there were no significant differences between the groups on the baseline administration of the questionnaire for Self-Efficacy: Communication, the groups were significantly different at 4 months (F (1,15) = 6.95, p = .02) (Table 3.4). Two other measures approached significance at 4 months: Self-

Efficacy: Physical Activity (F (1,15) = 4.03, p = .06) and Psychological Well-Being (F (1,15) = 3.56, p = .08). And while the means for Self-Efficacy for Physical Activity increased for both groups, the magnitude of increase was greater for experimental group 1 at the 4-month measurement time. Psychological Well-Being continued to be as different as it was at baseline.

Table 3.3: Experimental 1 and Wait-list Control Group, Responses on Baseline Administration of Pilot Study Questionnaire

	Experimental 1 (*n*=7)		Wait-List Control (*n*=10)		One Way ANOVA		
	M	*SD*	*M*	*SD*	*F*	*df*	*sig*
Self-Rated Health	2.7	1.3	2.3	1.0	0.61	1,15	.45
Psychological Well-Being	1.2	0.4	1.7	0.7	3.65	1,15	.08
Self-Efficacy: Physical Activity	6.1	2.8	4.9	2.5	0.88	1,15	.36
Self-Efficacy: Communication	7.9	1.3	6.9	2.1	1.21	1,15	.29
Self-Efficacy: Obtain Help	6.0	3.2	5.8	2.2	0.02	1,15	.88
Self-Efficacy: Self Management	7.4	1.7	6.0	2.7	1.50	1,15	.24
Self-Mgmt: Communication	1.3	0.5	2.1	1.5	1.75	1,15	.21
Self-Mgmt: Obtain Help	1.0	0.9	1.9	0.9	3.71	1,15	.07
Self-Mgmt: Physical Activity (separate items)							
• Flexibility	12.9	16.0	16.5	37.0	0.06	1,15	.81
• Walking	34.3	42.2	13.5	18.0	1.97	1,15	.18
• Swimming	10.7	16.7	16.5	39.0	0.13	1,15	.72
• Biking	17.1	45.4	1.5	4.7	1.21	1,15	.29

Table 3.4: Differences between Experimental Group 1 (*n*=7) and Wait-list Control Group (*n* =10) Responses to Pilot Study Questionnaire Baseline to 4 Months (experimental group 1 received intervention)

	Experimental 1 (*n* = 7)		Wait-list Control (*n* = 10)		One way ANOVA		
	M	*SD*	*M*	*SD*	*F*	*df*	*sig*
Self-Rated Health	2.9	1.1	2.9	0.9	0.01	1,15	.92
Psychological Well-Being	1.1	1.1	1.9	0.7	3.56	1,15	.08
Self-Efficacy: Physical Activity	7.4	1.9	5.0	2.7	4.03	1,15	.06
Self-Efficacy: Communication	9.1	0.9	6.9	1.9	6.95	1,15	.02*
Self-Efficacy: Obtain Help	7.7	2.0	7.1	1.6	0.48	1,15	.50
Self-Efficacy: Self Management	7.2	2.4	6.1	2.2	1.12	1,15	.31
Self-Mgmt: Communication	2.5	1.1	1.6	1.1	3.27	1,15	.09
Self-Mgmt: Obtain Help	2.1	1.3	2.3	1.4	0.06	1,15	.82
Self-Mgmt: Physical Activity (separate items)							
• Flexibility	45.0	37.7	6.0	7.7	10.34	1,15	.01*
• Walking	66.4	52.6	13.5	13.1	9.54	1,15	.01*
• Swimming	0.0	0.0	10.5	18.8	2.15	1,15	.16
• Biking	6.4	17.0	12.0	18.4	0.40	1,15	.54

* $p < .05$

Because of the small sample size, effect sizes were used next to examine if experimental group 1 differed from baseline to 4 month measurement (Table 3.5) and if the wait-list control group differed from baseline to the measure at 4 months (Table 3.6). Paired t-tests were used to calculate baseline to 4 month differences for each group; then effect sizes were calculated using the formula: $r = \sqrt{t^2 / (t^2 + df)}$. The resulting r-value provides an estimate of the effect size for a small sample (Friedman, 1982).

The experimental group had several measures with large and moderate effect sizes indicating change from baseline to four months, most likely attributable to the intervention. Self-Efficacy: Communication (r = .80) and Self-Management: Communication (r = .76) both had large effect sizes. Thus, it appeared that the intervention, focused on obtaining information about physical activity and resources and communicating one's needs seemed to be particularly effective. The intervention's focus on strategies for obtaining help also seemed to be affected as Self-Efficacy: Obtaining Help (r = .53) and Self-Management: Obtaining Help (r = .61) showed moderate effect sizes for the experimental group.

Importantly, the three other self-management measures, all reflective of performance of behaviors that were the focus of the intervention, showed moderate effects: Self-Management: Flexibility (r = .66), Self-Management: Walking (r = .50) and Self-Management: Swimming (r = .57). While these are self-report measures, they begin to indicate some change in physical activity behavior for the women who received the intervention.

Table 3.5: Experimental Group 1: Paired t-test and Effect Size, Baseline and Four Month Administration (*n*=7)

	Baseline		Four Month		*t*	*p*	*df*	Effect size(*r*)
	M	*SD*	*M*	*SD*				
Self-Rated Health	2.7	1.3	2.9	1.1	0.31	.77	6	.13
Psych Well-Being	1.2	0.4	1.1	1.1	-0.12	.91	6	.05
SE: Physical Activity	6.1	2.8	7.4	1.9	0.95	.38	6	.36
SE: Communication	7.9	1.3	9.1	0.9	3.27	.02	6	.80
SE: Obtain Help	6.0	3.2	7.7	2.0	1.53	.18	6	.53
SE: Self Management	7.4	1.7	7.2	2.4	-0.21	.85	6	.09
SM: Communication	1.3	0.5	2.5	1.1	2.86	.03	6	.76
SM: Obtain Help	1.0	0.9	2.1	1.3	1.89	.11	6	.61
SM: Physical Activity								
• Flexibility	12.9	16.0	45.0	37.7	2.17	.07	6	.66
• Walking	34.3	42.2	66.4	52.6	1.41	.21	6	.50
• Swimming	10.7	16.7	0.0	0.0	-1.70	.14	6	.57
• Biking	17.1	45.4	6.4	17.0	-0.56	.60	6	.22

Effect size(r): small=.2; moderate=.5; large=.8.

Table 3.6: Wait-List Control Group: Paired t-test and Effect Size, Baseline and Four Month Administration (*n*=10)

	Baseline		Four Month		*t*	*p*	*df*	Effect size(*r*)
	M	*SD*	*M*	*SD*				
Self-Rated Health	2.3	0.9	2.9	0.9	2.25	0.05	9	.60
Psych Well-Being	1.7	0.7	1.9	0.7	0.37	0.72	9	.12
SE: Physical Activity	4.9	2.5	5.0	2.7	0.14	0.89	9	.05
SE: Communication	6.9	2.1	6.9	1.9	0.00	1.00	9	.00
SE: Obtain Help	5.8	2.2	7.1	1.6	1.45	0.18	9	.44
SE: Self-management	6.0	2.7	6.1	2.2	0.04	0.97	9	.01
SM: Communication	2.1	1.5	1.6	1.1	-1.85	0.10	9	.52
SM: Obtain Help	1.9	0.9	2.3	1.4	1.45	0.18	9	.44
SM: Physical Activity								
• Flexibility	16.5	37.1	6.0	7.8	-0.96	0.34	9	.30
• Walking	13.5	18.0	13.5	13.1	0.00	1.00	9	.00
• Swimming	16.5	39.0	10.5	18.8	-0.63	0.55	9	.21
• Biking	1.5	4.7	12.0	18.4	2.09	0.06	9	.57

Effect size: small=.2; moderate=.5; large =.8.

Only two self-efficacy measures did not change dramatically for the experimental group 1 participants: Self-Efficacy: Physical Activity (r = .36) and Self-Efficacy: Self-Management (r = .09). Self-Efficacy: Physical Activity demonstrated a small effect size, due perhaps to the nature of the two questions: one combined walking, biking and swimming. These last two activities are not very common among our participants. Self-Efficacy: Self-Management mean scores actually decreased from the mean of 7.4 (SD = 1.7) at baseline to a mean of 7.2 (SD = 2.4). This could be a reflection of the participants being more realistic about their confidence in setting goals and making plans for including physical activity in their daily lives after participation in the intervention.

In contrast, the wait-list control group had no measures with large effect sizes, indicating little change on the measure from baseline to the four-month measurement. The wait-list control group had not yet received the intervention by this 4-month measurement. There were no measures that demonstrated a large effect size. However, the three measures that had moderate effect sizes were: Self-Rated Health (r = .60), Self-Management: Communication (r = .52) and Self-Management: Biking (r = .57). Enrollment in the study may account for participants' increased focus on their health, thus explaining the change in Self-Rated Health. However, Self-Management: Communication mean scores for the wait-list control group actually decreased from the first measurement time with an accompanying decrease in the variability (Baseline: M = 2.1, SD =1.5; Four month measure: M =1.6, SD = 1.1). Self-Management: Biking had a very low mean for baseline (M = 1.5, SD = 4.7), but mean scores increased dramatically

at four months (M = 12.0, SD = 18.4). This difference is due to a single participant who began to bike ride once enrolled in the study.

Univariate ANOVAs were also examined to test for interactions between experimental group 1 and wait-list control group on Stage of Change, Self‐Rated Health, Psychological Well-Being, and the paired self-efficacy and self-management scores. A significant group difference was found for Self-Management: Communication (F (1,15) = 8.79, p =.01). There was also a significant difference for Self-Efficacy: Communication (F (1,15) = 5.49, p =.04). However, this item approached (r =.27), but did not meet, the assumption of independence criteria for this test (r =.30).

Comparisons of Experimental Groups 1 & 2 (n=17) and Wait-List Control Group (n=8)

A comparison of the combined experimental group (n=17) (experimental groups 1 & 2) and wait-list control group (n=8) means from Baseline to four months is shown in Table 3.7. Only participants who completed the entire study (intervention and all the questionnaire items, n=25) were included in this analysis. Repeated measures ANOVA for the experimental and control groups at Baseline and four months (Table 3.8) revealed a significant interaction for Self-Management: Communication (p = .03). Instrument means were moving in the right direction with increases in self-efficacy and self-management; however, the changes were not statistically significant. Experimental group means for the Self-Efficacy items for communication, physical activity, obtaining help, and self-management were quite high at baseline indicating possible ceiling effects. For the wait-list control group, mean scores increased for almost all the self-efficacy and self-management items, suggesting the possibility of Hawthorne effects.

Table 3.7: Self-Efficacy and Self-Management Mean Scores: Experimental (*n*=17) and Wait-list Control (*n*=8), Baseline to Four Months

	Experimental Mean (*SD*) Baseline	Experimental Mean (*SD*) 4 Months	Control Mean (*SD*) Baseline	Control Mean (*SD*) 4 Months
Self-Efficacy: Communication	7.7 (1.9)	8.6 (1.7)	6.7 (2.2)	7.1 (1.8)
Self-Mgmt: Communication	1.5 (1.1)	2.4 (1.3)	2.1 (1.5)	1.8 (1.1)
Self-Efficacy: Obtain Help	6.5 (3.0)	7.4 (2.2)	5.9 (1.8)	7.3 (1.8)
Self-Mgmt: Obtain Help	1.2 (1.3)	2.0 (1.2)	1.9 (1.0)	2.5 (1.4)
Self-Efficacy: Phys Activity	6.9 (2.8)	7.3 (2.8)	4.7 (2.8)	5.4 (2.4)
Self-Efficacy: Self-Mgmt	7.9 (1.8)	8.0 (1.8)	6.1 (2.8)	6.7 (1.7)

Table 3.8: Repeated Measures ANOVA: Self-Efficacy and Self-Management Scores. Experimental (*n*=17) and Wait-list Control (*n*=8), Baseline to Four Months

Instrument	Mean Square	*df*	*F*	*p*	eta^2
Self-Efficacy: Communication					
• Time	3.966	1	1.873	0.184	0.075
• Group	3.873	1	3.873	0.061	0.144
• Interaction	0.675	1	0.319	0.578	0.014
Self-Mgmt: Communication					
• Time	0.933	1	0.984	0.332	0.041
• Group	0.000	1	0.000	0.989	0.000
• Interaction	4.853	1	5.117	0.033*	0.182
Self-Efficacy: Obtain Help					
• Time	13.954	1	2.369	0.137	0.093
• Group	0.872	1	0.159	0.693	0.007
• Interaction	0.718	1	0.122	0.730	0.005
Self-Mgmt: Obtain Help					
• Time	5.478	1	4.675	0.041	0.169
• Group	3.353	1	1.669	0.209	0.068
• Interaction	0.078	1	0.066	0.799	0.003
Self-Efficacy: Self-Mgmt					
• Time	1.690	1	0.794	0.382	0.033
• Group	27.163	1	4.936	0.036	0.177
• Interaction	0.830	1	0.390	0.539	0.017
Self-Efficacy: Physical Activity					
• Time	2.793	1	0.912	0.350	0.038
• Group	44.383	1	3.754	0.065	0.140
• Interaction	0.297	1	0.097	0.758	0.004

* $p < .05$

Chapter Summary

The pilot study was conducted over a one-year period with 29 low-income, ethnically-diverse, overweight and obese women age 40 and older who participated in a four-week, peer-led intervention to increase their level of physical activity. Preliminary analyses of the quantitative data from the pilot study provided information on effect size.

Changes in scores for the items measuring Self-Management: Communication were statistically significant, providing evidence that the intervention, focused on obtaining information about physical activity and resources and communicating one's needs, was particularly effective. However, the findings must be interpreted with caution because of the extremely small sample, nonrandom selection and assignment of participants to groups, and the unequal number of times the questionnaires were completed by the control and experimental groups.

In addition, there is evidence of both ceiling and Hawthorne effects that may threaten internal validity. Furthermore, while most of the instruments in the pilot study questionnaire had acceptable internal reliability, there is some evidence that construct and content validity of the self-efficacy instrument may be weak.

However, other data suggest that the intervention was quite successful: high retention rate for participants and peer leaders, positive formative and summative program evaluation data, acceptance and adoption of the program by the community, and positive comments from both participants and peer leaders.

While low-income, ethnic minority women are among those at highest risk for chronic disabling conditions related to inactivity, there is little published research data

demonstrating effective interventions that promote healthy lifestyle behaviors, such as regular physical activity, in this population (Yancey et al., 2004). A review of interventions to promote physical activity among African American women (Banks-Wallace & Conn, 2002) found that, while the number of studies of this type is growing, "study design and measurement limitations combined with inadequate replication of intervention components prevent the existing evidence from forming a solid base for practice" (p. 333). This points to the need for further research in this area; with particular attention to examining, clarifying, and refining methods, procedures, and especially instrumentation for use with ethnically-diverse, low-income populations.

In summary, this chapter has presented the methods, procedures, results, and analyses for the researcher's preliminary work: a pilot intervention study to increase physical activity in ethnically-diverse low-income women. Over the course of the two-year period in which the researcher planned, conducted, and analyzed the pilot study, the complexities of conducting community-based research with an underserved population have become more evident. This experience led to this author's in-depth examination of the recent literature in this area. The problems encountered in the pilot study with instrument validity were supported by the literature, in which validity issues related to ethnicity and culture are becoming quite well documented. In particular, there was a gap in the literature, as well as a documented need for, a valid scale to measure self-efficacy for physical activity in low-income, ethnically diverse women. Consequently, the focus of the dissertation study became development and testing of a self-efficacy scale for use with a subgroup of this population.

CHAPTER 4: METHODS

In this study, a scale to measure Self-Efficacy to Walk for Health among midlife and older, low-income, African American women was developed through use of a focus group. The psychometric properties of the newly developed Self-Efficacy to Walk for Health Scale (SEWHS) were examined. The SEWHS was used in a survey with its intended population. The survey included other variables identified in the literature as having an influence on physical activity (age, years of education, Self-Rated Health, Self-Rated Weight), which were examined in relation to Self-Efficacy to Walk for Health and walking for health behavior. A description of the study design, sample, procedures, and instrument is presented, followed by the specific analyses that were completed to answer each research question.

Design

This study can be characterized as a methodological investigation (Polit & Hungler, 1995). It concerns an investigation into the development and validation of the instrument's use for its intended purpose. In this study, the development of a Self-Efficacy to Walk for Health Scale (SEWHS) for midlife and older, low-income, African American women is described (Research Question 1). The SEWHS' content and construct validity, and internal consistency are described (Research Question 2). Finally, a descriptive cross-sectional survey was used to examine the relationship between age, years of education, Self-Rated Health, Self-Rated Weight, and Self-Efficacy to Walk for Health and walking for health behavior (Research Questions 3-5).

Sample

For the development and validation of the SEWHS, two samples of low-income, African American women were used. For the first sample, a focus group of four (out of eight invited) key informants met to develop a list of barriers to walk for health for inclusion in the SEWHS and to recommend the response option scheme for the scale (development). For the second sample, 150 surveys were sent to six breast cancer screening project sites to test the scale for its intended purpose (validation). Of the 150 surveys sent, 118 were returned. Of these, 9 were discarded because subjects did not meet the inclusion criteria for age. An additional 25 surveys had incomplete responses on the SEWHS and were excluded from the final analysis. Consequently, the total number of useable surveys for analysis was 84. Inclusion criteria for both the focus group and the survey were: female, age 40 or older, low income, able to read and speak English, and African American. The focus group women were recruited from a local women's health clinic while the survey respondents were recruited from a statewide breast cancer screening project. Details are described in the Procedures section.

African American women were chosen for both the focus group and survey for two reasons. First, there is evidence that barriers to physical activity such as walking for health are different across racial and ethnic groups. Heesch, Brown, and Blanton (2000) administered a questionnaire about stage of exercise adoption and perceived barriers to exercise in a cross sectional sample of 745 African American, 660 Hispanic, 738 Native American/Native Alaskan, and 769 Caucasian women age 40 and older. These

researchers found that for each racial/ethnic group, significant differences existed between the barriers reported and stages of exercise adoption.

Second, it is challenging to recruit low-income women into research studies. Research conducted in existing and trusted community agencies can often increase participation (Earl & Penney, 2001; Flaskerud & Nyamathi, 2000). For the survey sample, the researcher had the cooperation and interest in this study from the director of a large African American health promotion project for breast cancer screening and follow-up. The director of this project shared an interest in this study because physical inactivity is a risk factor for breast cancer. This cooperative relationship gave the researcher access to a sample of midlife and older, low-income, African American women in a large and diverse geographic area, representing both large, urban cities and small-to-midsize cities, and rural residences.

The final sample (N=109) was comprised of midlife and older, low-income, African American women. The sociodemographic characteristics of the sample are described in Table 4.1.

The sample consisted of women between the ages of 40 and 82 (M=52.66, SD=10.75). Years of education ranged from 7 to 18, (M=13.15, SD=2.19). Almost half (48.6%) completed 12 years of school or earned a GED; 48.6% completed between 13 and 18 years of education, with 24.8% of those reporting 16 years of education. A majority (68.8%) of the sample rated their weight as “overweight” or “very overweight” for their height. Approximately half (51.4%) of the sample rated their health as “good.”

About a quarter (23.9%) of respondents rated their health as “poor” or “fair” with the remaining respondents (23.9%) rating their health as “very good” or “excellent.”

Table 4.1: Sociodemographic Characteristics of Survey Sample (*N*=109)

Age	*n*	%
40 - 44	25	23.6
45 – 49	27	25.5
50 – 54	17	15.6
55 – 59	12	11.1
60 - 64	9	8.3
65 – 69	6	5.6
70 – 74	4	3.7
75 – 79	2	1.8
80 - 84	4	3.7
Missing	3	
	M=52.66	
	SD=10.75	
Years of Education	*n*	*%*
7	2	1.8
8	2	1.8
10	4	3.7
11	6	5.5
12 or GED	39	35.8
13	12	11.0
14	11	10.1
15	2	1.8
16	27	24.8
18	1	.9
Missing	3	
	M=13.15	

Table 4.1 (continued)

Self-Rated Weight	*n*	*%*
Underweight for my height	7	6.4
About right for my height	26	23.9
Overweight for my height	44	40.4
Very Overweight for my height	31	28.4
Missing	1	
Self-Rated Health	***n***	***%***
Poor	3	2.8
Fair	23	21.1
Good	56	51.4
Very Good	16	14.7
Excellent	10	9.2
Missing	1	

Table 4.2 presents descriptive data for the walking for health behavior items (Stage of Change for Walking for Health and Self-Reported Walking for Health. A large number of respondents (39.4%) reported in the Stage of Change question that they currently walk 30 minutes, 5 days a week. Of these, 22.0% reported walking at this level for six months or more (maintenance); 17.4% reported walking less than six months (action). Among non-walkers, 32.1 % reported that they intended to begin walking in the next 30 days (preparation).

When asked the number of times walked for health in the past two weeks, 42.2% of the sample reported that they did not walk at all. An additional 36.7% walked only one to three times in the past 2 weeks. The majority of respondents (61.3%) reported that they walked less than 30 minutes each time. The discrepancy between the two measures of walking for health behavior—Stage of Change for Walking for Health and Self-Reported

Walking for Health—is discussed in this chapter in the section titled "Additional Analyses."

Table 4.2: Walking for Health Behavior of Sample: Stage of Change for Walking for Health and Self-Reported Walking for Health (*N*=109)

Stage of Change for Walking for Health	*n*	*%*
Precontemplation	7	6.4
Contemplation	14	12.8
Preparation	35	32.1
Action	19	17.4
Maintenance	24	22.0
Missing	10	
Self-Reported Walking for Health (Number of times walked for health in the past 2 weeks)	***n***	***%***
0	46	42.2
1 - 3	40	36.7
4 - 6	8	13.7
8 - 10	4	3.6
14	2	1.8
Missing	2	
Self-Reported Walking for Health (Number of minutes walked each time)	***n***	***%***
0	46	42.2
1 - 29	21	19.1
30	31	28.4
31 - 60	8	7.3
Missing	3	

Procedures

This section is presented in three parts. The first part describes the procedures for the focus group (development of list of barriers for inclusion in the SEWHS). The second part describes the procedures for the initial validation of the SEWHS (content validity). The third part describes the remaining procedures for instrument validation (i.e., construct validity and reliability) accomplished through use of the instrument with its intended population.

Procedures for the Focus Group (Development)

A group interview (focus group) of women from the study target population was used to identify the barriers to walking for health for inclusion in a Self-Efficacy to Walk for Health Scale. Because the primary purpose for the focus group was to ensure validity of the self-efficacy scale, it was especially important to elicit the opinions of women from the target population for the scale as content experts. The use of "lay people" as content experts is described by Tilden, Nelson, and May (1990): "Lay experts are the best critics of abstract words or unclear phrasing and the best judges of the validity of the link between ideas and their expression in items" (p. 174).

The focus group format can be an effective method for pretesting questionnaire wording, measurement scales, or other elements of survey design (Denzin & Lincoln, 1998). The focus group is inexpensive, data rich, and flexible but can be challenging for the group facilitator, who must be sure that all members are heard and no one person or persons dominate the group (Denzin & Lincoln).

Approval for the focus group was obtained from The University of Texas at Austin Institutional Review Board for the protection of human subjects (Appendix C). The researcher had an established relationship with a community-based breast and cervical cancer screening clinic (Clinic) for low-income women operated by a school of nursing in the southwest. The Clinic nurse volunteered to recruit participants from the Clinic to participate in the focus group. Interested women were informed of the date, time, and place of the focus group meeting. All but one of the eight interested women was available in the evening so the group was scheduled for 6:00 PM, at the Clinic.

The focus group was conducted in February 2004. Participants provided written informed consent to audiotape the discussion prior to beginning the discussion. The audiotape was transcribed by the researcher and destroyed. The transcript is kept in a locked cabinet in a limited-access, locked office. A total of eight women expressed interest in participating in the focus group session; of these, seven agreed to attend, and four attended. Of the four participants, one walked for health regularly, one attended an exercise class offered by the Clinic, one reported being sedentary and not intending to start walking, and one walked in the past but was currently sedentary. All women were African American, low-income, and age 40 or older. A light dinner (sandwiches, baked chips, iced tea, and apple sauce) was provided to the participants as a thank you gift for their participation and to acknowledge that the women had busy lives and were giving up the dinner hour in order to participate in the focus group.

The researcher led the hour-long discussion and took notes. Ideally, an assistant to take notes and operate the tape recorder would have been used but an assistant was not

available to the researcher due to time and scheduling constraints. The role of the researcher as focus group facilitator was to make the participants feel comfortable giving their opinions and to keep the discussion on track with the purpose of the focus group.

The researcher began to establish trust with the focus group volunteers over the phone during the process of contacting them to make arrangements to attend the focus group meeting (Earl & Penney, 2001). Before the focus group started, the researcher introduced the members to each other, pointed out the location of the rest room, and invited the women to get something to eat and drink and have a seat. The researcher explained the purpose of the focus group; the consent form (Appendix D) was reviewed and signed by each participant.

A focus group discussion guideline (Appendix E) was used to elicit perceived barriers to walking for health benefits in midlife and older, low-income, African American women. At the start of the session, the researcher told the participants that the definition of walking for health is "walking for the purpose of improving your health" and barrier is "anything that gets in the way of walking for health." As an icebreaker, the women were asked: "Name a type of physical exercise that you have done for your health, or that you have thought about doing for your health" and "For women like yourselves, what gets in the way of fitting exercise into your daily life?" The main focus of the session was to gather information about barriers to walking. Therefore, the discussion focused on this question: "When thinking specifically of walking for your health, are there any barriers that get in the way of walking for health?" In addition to discussing their own experiences, the participants evaluated a list of low-income

women's barriers to exercise and discussed whether they thought that these barriers were relevant or meaningful to midlife and older, low-income, African American women. These barriers were theoretically derived from the literature. The researcher read each barrier, one at a time, and elicited focus group members' opinions about whether this was a meaningful barrier for them and women like themselves. In addition to relevance and meaningfulness, participants were also asked to comment on whether the wording and language of the barriers was clear and understandable.

The second purpose of the group discussion was to elicit opinions about response option formats for proposed self-efficacy scale. The participants were given four different examples of self-efficacy response option formats (Appendix F). These examples were taken from the self-efficacy literature (Bandura, 1997b; Laffrey & Asawachaisuwikrom, 2001; Resnick, 2001). Participants were told that these are different ways that researchers use to ask questions about confidence in doing tasks, like walking for health benefits. Participants were asked to rate each format with the following instructions: "Put a '1' next to the format(s) they, and women like themselves, think is easiest to understand and use. Put an 'X' next to the response option(s) that they think is very hard to understand."

The focus group then concluded. The participants were invited to take the remaining food home with them.

Procedures for the Initial Validation of the SEWHS (Content Validity)

The researcher recruited via email seven content experts—all nurses with experience in the area of health promotion with low-income populations, to evaluate the

SEWHS for content validity. Four experts were African American and three were Anglo American. The experts were asked to evaluate each item on the SEWHS on a 4-point scale: 1=not meaningful or relevant; and 4=very meaningful or relevant, on the basis of meaningfulness or relevance to the population of midlife and older, low-income, African American women. A content validity index (CVI) (Lynn, 1986; Waltz & Bausell, 1981) was calculated from the content experts' ratings of the relevance of each item and of the entire scale. The CVI represents the proportion of experts that judges each item and the entire scale as relevant. A CVI of at least .80 is considered acceptable (Lynn).

Procedures for the Survey (Construct Validity and Reliability)

A survey to test the SEWHS was conducted with a sample of low-income, African American women. The researcher received permission to recruit study subjects from the director of the Breast Cancer Outreach Project (BCOP), a large, statewide African American health promotion project for breast cancer screening and follow-up in the southwest. Project staff from six of these project (BCOP) sites agreed to recruit women into the survey study through posting fliers at the project sites (Appendix G) and at local health fairs in the BCOP site communities. The six BCOP sites were located in large, urban cities and mid-to-small sized cities that included rural residences. Approval for the study was obtained from The University of Texas at Austin Institutional Review Board for the protection of human subjects (Appendix H).

The researcher mailed a box of materials to each BCOP site. Each box contained an information letter to the BCOP project coordinator describing the procedures for data collection, 3 recruitment fliers to post around the project site area, 25 surveys, 25

information sheets, 25 incentives (athletic socks) to the participating BCOP sites, and a self-addressed, stamped envelope to return the completed surveys to the researcher. An exercise videotape was included in the box of materials as a gift to each site coordinator to thank her for recruiting subjects. The researcher financed the study from personal funds and through a research grant from Sigma Theta Tau International Nursing Honor Society, Epsilon Theta Chapter.

Women were eligible if they were (1) African American; (2) age 40 or older, (3) able to read and write English, (4) financially eligible for services through the Breast and Cervical Cancer Control Program (low or limited income). Criteria for eligibility in this program is defined as an income at or below the Federal Income Guideline of 200% of poverty.

BCOP staff gave potential participants an information letter (Appendix I) describing the study. If a woman expressed interest, she was given a questionnaire to complete. The subject returned the completed questionnaire to the BCOP staff person who then gave the subject a pair of athletic socks to thank her for participation in the study. The BCOP staff mailed the completed questionnaires to the researcher.

Data collection occurred over a three-month period. Of the 150 surveys sent to the BCOP sites, 118 were returned (79% response rate). One BCOP coordinator was unable to complete the data collection so the researcher asked her to forward the materials (25 surveys, incentives, etc.) to another site coordinator who volunteered to recruit the remaining subjects. The site coordinator received the package of forwarded materials one month later and the materials were found to be incomplete (missing the information

sheets and surveys). At this point, the data collection period had ended and an acceptable number of surveys had been completed. Therefore, no further data collection was attempted. Individual surveys were reviewed and 9 were discarded because subjects did not meet the inclusion criteria for age (they were younger than 40 years of age). Consequently, the total number of use able responses was 109.

Instrument

The study instrument consisted of a one-page survey (Appendix J): (1) age; (2) years of education; (3) Self-Rated Health; (4) Self-Rated Weight; (5) two measures of walking for health behavior: Stage of Change for Walking for Health, and Self-Reported Walking for Health; and, (6) Self-Efficacy to Walk for Health Scale (SEWHS). The instrument had a 5th grade reading level as assessed by the SMOG Readability Formula (McLaughlin, 1969) and a Flesch Reading Ease score of 90.0 and a Flesch-Kincaid grade level of 3.4, using the Microsoft Word® readability statistics option. In addition, attention was paid to layout and font size to enhance readability for people with low-literacy or poor vision. The instrument took 10 – 15 minutes to complete.

Self-Rated Health is single-item question that has been used extensively to tap individuals' perceptions of their general health status and has been found to be valid and highly correlated with other measures of physical health and with exercise behavior. Self-Rated Health is an item in the Behavioral Risk Factor Surveillance System (Centers for Disease Control and Prevention [CDC], 2002). The response options are: poor, fair, good, very good, and excellent. Reliability estimates ranged from .78 to .95 (Ware, 1993,

p. 7.5). Concurrent validity has been established with other health perception measures, such as current health (.88) and general health rating (.90) (Ware, p. 9.31).

Self-Rated Weight measures an individual's perception of his or her weight compared to height. Response options include: underweight for my height, about right for my height, overweight for my height, very overweight for my height. The researcher and the director of the BCOP developed this question to assess a woman's weight in a minimally intrusive way.

Stage of Change for Walking for Health is defined and operationalized as an indicator of the intent to adopt or maintain a particular behavior (in this case, walking) and has been used extensively in the Transtheoretical Model of behavior change (Marcus et al., 1992). This item was modified from Stage of Change for Physical Activity questionnaire (Marcus et al., 1992) to specifically measure walking for health rather than physical activity in general. The Stage of Change for Physical Activity questionnaire has been found to be highly correlated with self-reported physical activity behavior (Marcus & Simkin, 1993) as measured by the 7-day Physical Activity Recall Questionnaire (PAR). As modified for this study, this single-item measures one's current intention to walk for health and actual walking behavior along a continuum of the five stages of change regarding walking for health: precontemplation (not walking and no intention to start); contemplation (not currently walking but intend to begin in the next 6 months); preparation (not currently walking but intend to in the next 30 days); action (currently walking for less than 6 months); and, maintenance (walking for more than 6 months).

Self-Reported Walking for Health (SRWH) assesses the number of minutes the respondent walked for health during the past two weeks with two questions: number of times walked in the last two weeks and number of minutes walked each time. SRWH is calculated by multiplying the two values. This item is adapted from the National Health Interview Survey item "Self-Reported Walking for Exercise" (Piani &Schoenborn, 1993).

The Self-Efficacy to Walk for Health Scale (SEWHS) is a 14-item numeric scale that asks respondents to rate how confident they are that they can walk for 30 minutes, 5 days a week in the face of various barriers. Response choices range from "1-I'm sure I can't" to "5-I'm sure I can." The development of this researcher-developed scale and psychometric properties are described in the analysis section of this chapter (Research Question 1 and 2).

Analysis of Survey Responses

All data were entered into SPSS® 11.5 statistical software program. Random checks were done to ensure accuracy. Data were examined for out of range values prior to analysis. For the two-item self-reported walking for health question, if a subject responded with a range of days or amount of time walked (e.g., 30-40 minutes, 2-3 times a week, the mean was entered (35 minutes, 2.5 times). For the 14-item SEWHS, if two items or less were missing values, the item was imputed with the scale mean (n=11). If more than 2 items were missing, the data were excluded from the final analyses (n=25). Consequently, the total number of useable surveys (with complete SEWHS data) was 84. Because 19% of subjects did not complete the SEWHS, a separate analysis was done to

examine whether there were differences between subjects who completed the scale completely and those who did not.

After the data set was cleaned, histograms were generated to assess for normal variance, skewness, and kurtosis. Scattergrams were also generated to check for linear relationships and outliers. The SEWHS scores depicted a linear relationship with good variability but were slightly skewed toward upper values (I'm sure I can).

Self-Reported Walking for Health was computed by multiplying the number of times walked in the past 2 weeks by the number of minutes walked each time. Examination of scores revealed one subject who reported walking at a rate greater than 8 standard deviations above the mean; this subject was considered an outlier and was excluded from the analysis. After this case was removed, the variable was re-assessed and found to still have high values for skewness (2.2) and kurtosis (5.6).

Analyses were then performed using SPSS® 11.5. Exploratory factor analysis was used for SEWHS responses to examine construct validity, and Cronbach's coefficient alpha was used to estimate reliability. Either Pearson's product moment correlation or Spearman's rho were used to examine relationships between Self-Efficacy to Walk for Health, self-reported walking for health, Stage of Change for Walking for Health, age, education, Self-Rated Health, and Self-Rated Weight. An alpha level of .05 was used for statistical significance.

Chapter Summary

The study was conducted over a five month time period. First, a focus group was held to determine the barriers for inclusion in a Self-Efficacy to Walk for Health scale

(SEWHS); four (out of eight invited) participated in the focus group. Second, the SEWHS was evaluated by seven experts to estimate content validity. Third, estimates of construct validity and reliability of the SEWHS were accomplished through use of the SEWHS in a survey with its intended population. A total of 118 women completed the survey at five different sites, with 109 meeting the inclusion criteria for the study. Of these 109 responses, 84 surveys were useable for the SEWHS analyses. Results of these analyses are presented in Chapter Five.

CHAPTER 5: RESULTS

This chapter presents results of the data analyses specific to each research question. Additional analyses are also presented.

Research Question 1

For midlife and older, low-income, African American women, what are the perceived barriers to walking for health for inclusion in a Self-Efficacy to Walk for Health Scale? The findings from the focus group were analyzed to answer this question as follows.

Identification of Self-Efficacy to Walk for Health Items

The researcher transcribed the data from the focus group discussion and performed a line-by-line analysis to identify barriers to walking for health. The women agreed with 11 of the 13 items from the list of barriers theoretically derived from the literature: I feel tired; I just had my hair done; I feel stressed; the weather is not good; someone in my family is sick; I feel depressed; I have no one to walk with me; I am too busy with other things; there is no safe place to walk; I have too much work; I feel pain when I walk. The two items: “I am busy taking care of family or others” and “My family needs me” were discussed and it was determined by the group that these items expressed the same idea. However, “I am busy taking care of family or others” was determined to be the better of the two items. One woman explained: “… because a lot of people take care of friends or significant others other than just family.” Thus, this item was retained and the other was deleted.

Two new items were added by the group: “I lack the motivation” and “I don’t feel the need to walk for my health.” Lack of motivation was the label given by the group to express their experiences: “making excuses for not doing what you need to do; procrastinating; when you say you’re going to do it but you’re really not trying.”

“I don’t feel the need to walk” was identified by participants as similar to “I lack the motivation.” However, “I don’t feel the need” expresses that there is really no felt need or drive to walk. In this group of women, exercise was seen as something that is done for the purpose of losing weight or managing a chronic disease, such as diabetes or hypertension. While it was clear that the women in this group understood that walking and other types of exercise helps prevent obesity and other chronic illnesses, because they were not yet overweight or ill, they did not feel the need to exercise. One participant explained:

> A person that’s got a decent weight and basically has no major health problems…so they don’t feel the need…because they thinking of the results of exercise is going to be…so they don’t think they have a need to do it. When we think about exercise we think about people who need to exercise as opposed to preventive reasons…the difference between need and prevent. I’m overweight but I don’t have any health problems…I don’t smoke…so, I don’t have a major need…but further on down the road, the weight…the cholesterol could start setting in…I could PREVENT…even though I don’t lose any weight.

Another participant explained that "I don't feel the need" also expressed the belief that because she leads a busy, active life through caring for a grandchild she was not only active enough, she was too tired to do more, and she deserved to rest:

> When my doctor asks me (about exercise)…I say, girl, I exercise with my grandbaby twice a week and when she gets through, I need to rest until the next Monday rolls around…cause I've got to start all over again…I was real honest too…because that girl wears me out. I need to relax.

This participant later added: "I'm not laying around…I'm active…it's just walking…I mean I am an active person…but just not exercising…going out and walking."

There was also some discussion about why the study was called "African American women's barriers." One participant stated:

> The things we're talking about affect people in general, not necessarily an African American thing…well, maybe the hair (referring to the item 'I just had my hair done')…people who are not of African American descent can easier wash their hair than we can…so that may be a barrier for African American women.

Another participant stated: "about African American and doing this study…this is basically about Black women…you know, their views…everywhere I go I see White women walking."

A total of 14 items comprised the final version of the SEWHS. The 14 items represented barriers to walk for health in midlife and older, low-income, African American women

Self-Efficacy Response Option Format

Discussion group participants were also asked to look at four different types of self-efficacy scale response formats (Appendix F) and rate which one was the easiest and clearest for them. The five-point scale with the anchors: 1= 'I'm sure I can't' and 5= 'I'm sure I can' was ranked as the most desirable by this group. Comments included:

> This (pointing to the format 'I'm sure I can't' –'I'm sure I can') is the better one … you don't have overkill with options … you've got can, can't, you got middle ground … it doesn't take a lot of thought;
>
> If people are going to do a survey, they don't want sit down and be bogged down in it. And this (pointing to 0-10 option format) … you've got 10 things to think about … and you're trying to think if you've ever been confident in your life … you either can or can't ;
>
> If you want people to do a survey . . . you don't want to give them a lot of stuff to read and write … you want to get to the point and get them answered.

The final 14 items and the response format of the SEWHS are illustrated in Appendix K.

Research Question 2

For midlife and older, low-income, African American women: What are the psychometric properties of the Self-Efficacy to Walk for Health Scale?

The 14-item Self-Efficacy to Walk for Health Scale (SEWHS) measures confidence to walk for 30 minutes, 5 days a week in the face of various barriers. Respondents are asked to circle the number that describes: 'How sure are you right now that you can <u>walk</u>

for your health at least 30 minutes, 5 days a week when…' (a list of barriers to walking follows). Responses are on a five-point scale with the anchors: '1=I'm sure I can't,' and 5='I'm sure I can.' The SEWHS score is the mean of the item responses. Development of the items comprising the SEWHS was described in Research Question 1.

The psychometric properties of the SEWHS were assessed in three ways: content validity, construct validity, and internal consistency. The results of these analyses follow.

Content validity

The researcher recruited, via email, seven content experts—all nurses with experience in the area of health promotion with low-income populations, to evaluate the SEWHS for content validity. Four experts were African American and three were Anglo American. The experts were asked to evaluate each item on the SEWHS on a 4-point scale: 1='not meaningful or relevant;' and 4='very meaningful or relevant,' on the basis of meaningfulness or relevance to the population of midlife and older, low-income, African American women (Appendix L). A content validity index (CVI) (Lynn, 1986; Waltz & Bausell, 1981) was calculated from the content experts' ratings of the relevance of each item of the entire scale. The CVI represents the proportion of experts that judges each item of the entire scale as relevant. A CVI of at least .80 is considered acceptable (Lynn). For the entire SEWHS, the CVI= .97. The item CVI was 1.00 for all but three items: 'I just had my hair done' (CVI=.86); 'I feel stressed' (CVI=.86); and, 'I have no one to walk with me' (CVI=.86). Thus, content validity of the SEWHS was within the acceptable range for all the items of the instrument.

One expert commented that the words 'right now' in the stem of the question ('How sure are you right now that you can walk for your health at least 30 minutes, 5 days a week') might be unnecessary. However, this language was retained in order to be sure the respondent is answering the question about their confidence at this time, rather than in some hypothetical future. According to Bandura (1997b): "Preliminary instructions should establish the appropriate judgmental set. People are asked to judge their operative capabilities as of now, not their potential capabilities or their expected future capabilities" (p. 44). Thus, the stem of the question was not revised.

Construct Validity

Factor analysis using principal axis factoring was used to examine construct validity of the SEWHS and explore the factor structure in this sample. Factor analysis can be used to validate a scale by demonstrating that its items load on the same factor and to identify items that cross-load on more than one factor. Concerning the adequacy of the sample size for performing factor analysis, Tinsley and Tinsley (as cited in DeVellis, 1991) suggest a ratio of about 5 to 10 subjects per item for factor analysis. For the 14-item SEWHS, the recommended sample size is 70-140. The sample size (n=84) for participants with complete SEWHS data met this rule. The critical value for a simple correlation at the .05 level for a one-tailed test for a sample of 84 is approximately .20. The critical value was doubled, and factor loadings of .40 or greater in absolute value were declared statistically significant at the .05 level (K. Kouzekanani, personal communication, August 6, 2004).

In this sample, the communalities for the SEWHS (Table 5.2) ranged from a low of .33 ("I don't feel the need to walk for my health") to a high of .82 ("I feel stressed"). Communality is the percent variance in a given variable explained by the extracted factors and may be interpreted as the reliability of an indicator (Garson, 2004). According to Garson:

> … communalities must be interpreted in relation to the interpretability of the factors. A communality of .75 seems high but is meaningless unless the factor on which the variable on which is loaded is interpretable, though it usually will be. A communality of .25 seems low but may be meaningful if the item is contributing to a well-defined factor. (p.7)

Table 5.2: SEWHS Communalities, *N*=84

SEWHS Item Number and Barrier	Communalities
3. I feel stressed	.82
4. The weather is not good	.77
6. I feel depressed	.75
11. I have too much work	.72
8. I am too busy with other things	.64
5. Someone in my family is sick	.64
13. I lack the motivation	.61
10. There is no safe place to walk	.53
12. I feel pain when I walk	.53
2. I just had my hair done	.47
9. I am busy taking care of family or others	.47
1. I feel tired	.46
7. I have no one to walk with me	.46
14. I don't feel the need to walk for my health	.33

Factor analysis was performed first with varimax rotation. Three factors were extracted, with eigenvalues of 6.8, 1.3, and 1.1, which together account for 58% of the

variance. These factor loadings were statistically significant. Table 5.3 presents the factor loadings and factor structure for this varimax rotation (SPSS® 11.5).

Table 5.3: SEWHS Factor Analysis with Varimax Rotation, *N*=84

SEWHS Item Number and Barrier	Factor I	Factor II	Factor III
11. I have too much work	.79		
8. I am too busy with other things	.72		
13. I lack the motivation	.66		
9. I am busy taking care of family or others	.63		
10. There is no safe place to walk	.47		
3. I feel stressed		.85	
6. I feel depressed		.77	
2. I just had my hair done		.56	
14. I don't feel the need to walk for my health		.53	
7. I have no one to walk with me		.52	
4. The weather is not good			.84
5. Someone in my family is sick			.64
1. I feel tired			.51
12. I feel pain when I walk			.46

Items that loaded on each of the three factors were examined for meaningful interpretable constructs. Factor I tended to load high on items related to lack of time and being busy: "I have too much work;" "I am too busy with other things;" "I am busy taking care of family or others." The item "I lack the motivation" could reflect the difficulty getting motivated to walk for health when one perceives that time and safety are major barriers. The item "There is no safe place to walk" could reflect the challenge of finding and getting to a safe place to walk when one perceives that time is a barrier.

Factor II loaded high on barriers related to emotions and feelings: "I feel stressed" and "I feel depressed" had the highest factor loadings. "I don't feel the need to walk for

my health" and "I have no one to walk with me" also loaded high on Factor II. The item "I just had my hair done" does not appear to relate to the other items on this factor.

Factor III had high loadings on external barriers: "The weather is not good" and "Someone in my family is sick." This factor also loaded on items concerning somatic complaints: "I feel tired," and "I feel pain when I walk." The item "The weather is not good" fits well with these somatic complaint items since bad weather can often exacerbate painful conditions such as arthritis or can make walking difficult in a person with fatigue or whose gait is unstable.

Estimates of reliability were calculated for each factor grouping. Cronbach's coefficient alpha coefficients were .85 for Factor I, .85 for Factor II, and .86 for Factor III, suggesting a high level of internal consistency for each of the factors.

Although the reliability estimates were acceptable for the three-factor solution, the factors were defined by very few items (five in Factor I, five in Factor II, and four in Factor III). There was also concern that this three-factor solution was not conceptually clear. For example, it is not known how the item "I just had my hair done" is conceptually related to the other items with high loadings on Factor II. According to Stevens (2002), for a sample size of less than 150, factors with four or more loadings above .60 in absolute value are reliable. In this sample, only Factor I met this criteria. Therefore, factor analysis using an oblique rotation with two factors specified was performed. Results from this analysis revealed a one-factor solution provided the best confirmation for construct validity of the SEWHS.

Internal Consistency

For the Self-Efficacy to Walk for Health Scale, the mean for the entire scale was 3.48 (*SD*=1.00), slightly skewed toward the response option "I'm sure I can." In fact, most of the responses to the individual items were slightly skewed in this direction, reflecting higher self-efficacy to walk for health.

Estimates of internal consistency reliability for the entire SEWHS were computed: Cronbach's coefficient alpha for the 14-item SEWHS was .92 (Table 5.4), suggesting a high level of internal consistency. Corrected item-total correlations ranged from .45 ("I don't feel the need to walk for my health") to .72 ("I feel depressed"); the average inter-item correlation coefficient was .64. The alpha level for items if deleted ranged from .91 to .92, indicating that the scale reliability would not change appreciably if any of the items were deleted.

Table 5.4: SEWHS Reliability Analysis, *N*=84

Self-Efficacy to Walk for Health Responses	*Mean*	*SD*	Corrected Item-Total Correlation	Alpha if Item Deleted
I feel tired	3.53	1.46	.60	.91
I just had my hair done	3.51	1.44	.62	.91
I feel stressed	3.45	1.49	.68	.91
The weather is not good	3.30	1.46	.59	.91
Someone in my family is sick	3.35	1.45	.70	.91
I feel depressed	3.58	1.46	.72	.91
I have no one to walk with me	3.81	1.31	.61	.91
I am too busy with other things	3.48	1.26	.68	.91
I am busy taking care of family or others	3.39	1.47	.54	.92
There is no safe place to walk	3.43	1.53	.68	.91
I have too much work	3.39	1.42	.67	.91
I feel pain when I walk	3.09	1.55	.70	.91
I lack the motivation	3.51	1.45	.70	.91
I don't feel the need to walk for my health	4.01	1.38	.45	.92
All scale items	3.48	1.00	α=.92	

Summary of Findings for Research Questions 1 and 2

A focus group was held to identify barriers to walking for health among midlife and older, low-income, African American women. Triangulation of data theoretically derived from the research literature with data from the focus group were used to identify a meaningful set of barriers for inclusion in a Self-Efficacy to Walk for Health Scale (SEWHS). The focus group also reviewed various self-efficacy scale response options and recommended the one they believed was clearest and easiest to understand.

Psychometric testing of the SEWHS began with expert evaluation to establish content validity. A content validity index (CVI) was calculated from experts' rating of

the relevance of each item and the total scale. The CVI was acceptable for both the individual items (.86 to 1.0) and the entire scale (.97). Next, the SEWHS was used in a survey of midlife and older, low-income, African American women (N=109).

From the survey data, the additional psychometric properties of the SEWHS were examined. Factor analysis using principal axis factoring was used to examine construct validity of the SEWHS and explore its factor structure. An oblique rotation with two factors specified revealed that the factors were significantly correlated (r=.71, p<.01), providing evidence for construct validity of the SEWHS. Internal consistency reliability (Cronbach's coefficient alpha) was .92. The average inter-item correlation was .64. These psychometric tests provided preliminary evidence for validity and reliability of the SEWHS.

Introduction to Research Questions 3, 4, and 5

Questions three, four and five are answered by examining relationships between the study variables. Pearson's correlation was used for interval and ratio level data and Spearman's rho was used for nominal and ordinal data. The more conservative Spearman's rho was used to examine relationships between ordinal and interval-level data. Table 5.5 presents the correlation matrix for the study variables.

Table 5.5: Correlation Matrix Among All Study Variables

		Age	EDU	SRH	SRW	SRWH	SOC	SEWH
Age	Correlation Sig. (2-tailed) N							
EDU	Correlation Sig. (2-tailed) N	-.30** .00 104						
SRH	Correlation Sig. (2-tailed) N	-.16 .10 105	.27** .01 105					
SRW	Correlation Sig. (2-tailed) N	-.04 .66 105	.28** .00 105	-.14 .14 107				
SRWH	Correlation Sig. (2-tailed) N	-.01 .93 103	.01 .96 103	.18 .06 105	-.06 .56 105			
SOC	Correlation Sig. (2-tailed) N	.04 .70 96	-.11 .31 96	-.20† .05 98	-.03 .78 99	-.60** .00 96		
SEWH	Correlation Sig. (2-tailed) N	-.10 .38 81	.02 .88 81	.38†† .00 83	-.24† .030 84	.11 .33 81	-.03 .82 79	

** p<.01 using Spearman's rho; † p<.05; †† p<.01 using Pearson's Product Moment Correlation
Note: EDU=Years of education; SRH=Self-Rated Health; SRW=Self-Rated Weight; SRWH=Self-Reported Walking for Health; SOC=Stage of Change for Walking for Health; SEWH=Self-Efficacy to Walk for Health score.

Research Question 3

For midlife and older, low-income, African American women, what is the relationship between Self-Efficacy to Walk for Health and walking for health behavior?

Walking for health behavior was measured in two ways: Stage of Change for Walking for Health (SOC) and Self-Reported Walking for Health (SRWH). Pearson's correlation was used to examine the relationship between Self-Efficacy to Walk for Health (SEWH) and SOC. No significant relationship was found in this sample between

SEWH and SOC. Spearman's rho was used to examine the relationship between SEWH and SRWH; no significant relationship was found in this sample between these two variables. Thus, there appears to be no significant relationship between Self-Efficacy to Walk for Health and walking for health behavior in this sample of midlife and older, low-income, African American women. However, the two measures of walking for health behavior, Stage of Change for Walking for Health and Self-Reported Walking for Health were highly correlated (r=-.60, p<.01).

Research Question 4

For midlife and older, low-income, African American women, what relationships exist between age, education, Self-Rated Health, Self Rated Weight and Self-Efficacy to Walk for Health?

Spearman's rho was used to examine the relationship between Self-Efficacy to Walk for Health (SEWH) and age, and SEWH and education. There was no significant relationship found in this sample between SEWH and age, and between SEWH and education. Pearson's correlation was used to examine the relationship between SEWH and Self-Rated Health (SRH) and Self-Rated Weight (SRW). There was a significant positive relationship between SEWH and SRH (r=.38, p<.01), and between SEWH and SRW (r=-.24, p<.05).

Thus, in this sample of midlife and older, low-income, African American women, Self-Efficacy to Walk for Health was not significantly related to age or to education. However, Self-Efficacy to Walk for Health was significantly related to both Self-Rated Health and Self-Rated Weight.

Research Question 5

For midlife and older, low-income, African American women, what relationships exist between age, education, Self-Rated Health, Self- Rated Weight and walking for health behavior?

The two measures of walking for health behavior (Stage of Change for Walking for Health [SOC] and Self-Reported Walking for Health [SRWH]) were significantly correlated (r=-.60, p<.01). It should be noted that the Stage of Change question was worded with higher values representing less walking, which resulted in negative correlations. The correlation between these two items was expected as they both measured walking for health behavior, but in different ways.

Relationships between the two measures of walking for health behavior and other variables were examined separately. Pearson's correlation was used to examine the relationships between SOC and Self-Rated Health (SRH), and SOC and Self-Rated Weight (SRW). There was a significant relationship between SOC and SRH (r=-.20, p<05). No significant relationship was found in this sample between SOC and SRW.

Pearson's correlation was used to examine the relationships between SOC and age, and SOC and education. There were no significant relationships found between SOC and age, or for SOC and education in this sample.

Spearman's rho was used to examine the relationships between Self-Reported Walking for Health (SRWH) and age, education, SRH, and SRW. No significant relationships were found. However, the relationship between SRWH and SRH approached significance (r=.18, p=.06).

Thus, in this sample of midlife and older, low-income, African American women, there was no significant relationship between walking for health behavior (SOC and SRWH) and age, education, and Self-Rated Weight.

Additional Analyses

The correlation matrix provided information on the relationship between other variables in the study. Significant relationships were found between age and education (r=-.30, p<.01); Self-Rated Health and education (r=.27, p<.01); and, Self- Rated Weight and education (r=.28, p<.01).

Differences were noted in the individual responses to the two measures of walking for health behavior, Stage of Change for Walking for Health (SOC) and Self-Reported Walking for Health (SRWH). These items were reanalyzed to get a clearer picture of how participants responded to each of these questions. SOC was recoded into two dichotomous variables: (1) does not currently walk (Precontemplation, Contemplation, or Preparation stages), and (2) currently walks (Action or Maintenance stages). SRWH was also recoded into two dichotomous variables: (1) yes, walks 30 minutes, five days a week, and (2) no, does not walk 30 minutes, five days a week. Although the two measures of walking for health behavior were highly correlated, closer examination revealed that although 43 respondents reported walking regularly at the rate of 30 minutes, 5 days a week (maintenance and action stages), only 3 participants reported walking times of this amount (Table 5.6).

Table 5.6
Comparison Self-Reported Walking for Health and Stage of Change for Walking for Health (n=99)

	Stage of Change = Precontemplation, Contemplation, or Preparation (does not currently walk)	Stage of Change = Action or Maintenance (currently walks)	Total
SRWH=Walks 5 days/30 min			
no	56	40	96
yes	0	3	3
Total	56	43	99

As noted in the Methods chapter, 25 of 109 respondents had incomplete data for the Self-Efficacy to Walk for Health Scale (SEWHS). An analysis of these cases revealed that the majority (40%) were from one data collection site. It is possible that the directions were given incorrectly to some of the subjects at this center. The subjects with missing data were also significantly older (t=-2.75, p>.05) and also walked significantly less (as measured by SRWH) (t=1.48, p>.05) than subjects who completed all items on the SEWHS.

Summary of Findings for Research Questions 3, 4, and 5

A correlation matrix provided information about the relationships between the study variables. In this sample of midlife and older, low-income, African American women, there was no significant relationship between Self-Efficacy to Walk for Health and walking for health behavior. Self-Efficacy to Walk for Health was also not significantly related to age or to education. However, Self-Efficacy to Walk for Health was significantly related to Self-Rated Health and Self-Rated Weight.

There was no significant relationship between walking for health behavior (SOC and SRWH) and age, education, or Self-Rated Weight. Those with greater perceived health (SRH) walked more, as measured by Stage of Change for Walking for Health; this relationship also approached significance in the second measure of walking for health behavior, Self-Reported Walking for Health.

There was a discrepancy between the two measures of walking for health behavior. Although more than half of the women in the study rated their Stage of Change for Walking for Health as action or maintenance, only three were actually walking at this level, as measured by the Self-Reported Walking for Health question. This suggests that many of the participants may have misunderstood or misinterpreted the Stage of Change question. Collins, Lee, Albright, and King (2004) reported a similar discrepancy between actual physical activity behavior and Stage of Change in their recently published physical activity intervention study with low-income women. Heesch et al. (2000) found in a multiethnic sample of women aged 40 and older, that the percentage of women reporting

to be in the maintenance stage (49%) was likely overestimated in comparison to other published data for women in this age group.

In addition, 23% of the sample had incomplete SEWHS data. This suggests that there may have also been confusion about how to complete the SEWHS questions, or perhaps, that participants were disinterested or fatigued toward the end of the survey. Discussion of the findings will be presented in Chapter Six.

CHAPTER 6: SUMMARY

This chapter provides an overview of the study and conclusions. First, the purpose, research questions, methods, data analyses and findings will be reviewed. This will be followed by a discussion with interpretation of the findings, limitations of the study, and implications for research, theory and practice.

Purpose and Research Questions

The purpose of this study was to develop a Self-Efficacy to Walk for Health Scale for use with midlife and older, low-income, African American women and test this instrument with a sample from this population to determine its validity and reliability. The psychometric properties of the SEWHS and the relationships between Self-Efficacy to Walk for Health and established correlates of physical activity were also examined.

The following research questions were answered by this study. For midlife and older, low-income, African American women:

1. What are the perceived barriers to walk for health, for inclusion in a Self-Efficacy to Walk for Health Scale?
2. What are the psychometric properties of the Self-Efficacy to Walk for Health Scale?
3. What is the relationship between Self-Efficacy to Walk for Health and walking for health behavior?
4. What relationships exist between age, education, Self-Rated Health, Self Rated Weight and Self-Efficacy to Walk for Health?
5. What relationships exist between age, education, Self-Rated Health, Self Rated Weight and walking for health behavior?

Methods

A methodological investigation was conducted to investigate the development and validation of the SEWHS for its intended purpose. A descriptive cross-sectional survey was used to examine the relationship between Self-Efficacy to Walk for Health and walking for health behavior, and the relationship between these variables with known correlates of physical activity: age, education, Self-Rated Health, and Self-Rated Weight.

Sample

For the development and validation of the SEWHS, two samples of low-income, African American women participated. For the first sample, a focus group of four key informants met to develop a list of barriers to walk for health for inclusion in the SEWHS and to recommend the response option scheme for the scale (development). Focus group participants were recruited from a local breast cancer screening clinic by the clinic nurse; the author conducted the focus group.

For the second sample (survey sample), 150 surveys were sent to six breast cancer screening project sites to test the scale for its intended purpose and establish validity and reliability. Project staff identified eligible women and distributed surveys to those interested in participating. The survey was comprised of the following measures (Appendix J): age, years of education, Self-Rated Health, Self- Rated Weight, Stage of Change for Walking for Health, Self-Reported Walking for Health, and Self-Efficacy to Walk for Health Scale. Of the 150 surveys, 118 were returned; of these, 109 met the inclusion criteria. Of those, 25 surveys had incomplete responses on the SEWHS and were excluded from the final analysis of the SEWHS. Consequently, the total number of

useable surveys for SEWHS analysis was 84. All participants were midlife and older, low-income, African American women able to read and write English.

Sociodemographic Characteristics of the Survey Sample

The sample ranged in age from 40 to 82 (*M*=52.66, *SD*=10.75). Years of education ranged from 7 to 18 (*M*=13.15, *SD*=2.19). Almost half (48.6%) completed 12 years of school or earned a GED and 48.6% completed between 13 and 18 years of education, with 25.7% of those reporting 16 years of education.

The sample was likely more educated than the general population of low-income women. Based on national poverty statistics, low educational attainment is associated with low income (Institute for Research on Poverty, 2002; U.S. Census Bureau, 2002). Although educational attainment data are not available for Texas residents at or below 200% of poverty, for all adults over the age of 25 (U.S. Census Bureau), 11.5% completed 8 or fewer grades versus 3.6% of the sample, and 38% of Texans completed grades 9 – 12 versus 45% for the sample (Table 6.1). The sample had slightly fewer years of education past the 12th grade compared to Texans. It is possible that more educated women are accessing the breast cancer screening program and thus were captured as part of this study sample.

A majority (68.4%) of this sample rated their weight as “overweight” or “very overweight” for their height. Approximately half (51.4%) of the sample rated their health as “good.” About a quarter (23.9%) of respondents reported their health as “poor” or “fair” with the remaining respondents (23.9%) reporting their health as “very good” or “excellent.”

Table 6.1
Educational Attainment: Texas Population 25 and Older Compared to Survey Sample

Years of Education	Texas (2000 Census) (%)	Study Sample (%)
Less than 9	11.5	3.6
9-12	37.7	45.0
Some College/Graduate School/Post Graduate	48.6	50.8*
Missing	2.2	

* Reported as more than 12 years of education

Survey Sample Responses to Two Measures of Walking for Health Behavior

The survey was designed to include two measures of walking behavior: Stage of Change for Walking for Health and Self-Reported Walking for Health. A large number of respondents (39.4%) reported in the Stage of Change for Walking for Health question that they currently walk 30 minutes, 5 days a week. Of these, 22.0% reported walking at this level for six months or more (maintenance); 17.4% reported walking less than six months (action). Among non-walkers, 32.1 % reported that they intended to begin walking in the next 30 days (preparation). The Surgeon General's report (USDHSS, 1996) estimates that among U.S. women age 45 and older of all races, education, and income levels, 77 to 88% are not physically active. In contrast, 42 to 51% of the women in the study sample were inactive (Self-Reported Walking for Health = 0; Stage of Change for Walking for Health = precontemplation, contemplation, preparation). It is

possible that in this self-selected, convenience sample, more active women chose to participate in the survey. With the increased attention on the obesity epidemic and the importance of activity, it is also possible that social desirability was a threat to validity in this sample.

It is also possible that respondents misread, misunderstood, or misinterpreted the Stage of Change question. A discrepancy was noted between the two measures of walking for health behavior— Stage of Change for Walking for Health and Self-Reported Walking for Health. Although these two measures were highly correlated ($r=-.60$, $p<.01$), closer examination revealed that although 43 respondents reported in the Stage of Change question as walking regularly at the rate of 30 minutes, 5 days a week (maintenance and action stages), only 3 participants reported walking times of this amount in the Self-Reported Walking for Health question.

Collins, Lee, Albright, and King (2004) reported a similar problem with the Stage of Change question in their recently published physical activity intervention study with low-income women. Heesch et al. (2000) found in a multiethnic sample of women aged 40 and older, that the percentage of women reporting to be in the maintenance stage (49%) was overestimated in comparison to other published data for women in this age group. As Heesch et al. pointed out, because the Stage of Change measure has been primarily used with an Anglo American population, more research is needed to examine its psychometric properties in non-Anglo American populations.

It is also possible that the placement of the two questions about walking behavior on the survey led respondents to misinterpret the meaning of the questions. The first

question—Self-Reported Walking for Health, asked: "How many times in the past two weeks have you walked for your health?" and "How many minutes each time?" Immediately following was the Stage of Change question: "How long have you been walking for health for at least 30 minutes, 5 times a week?" Despite the attempt to highlight that the question was asking about walking behavior specifically at the level of 30 minutes, 5 days a week, participants may have answered the question in relation to the previous question which looked at their current walking pattern. In future administrations of this survey, these two questions would not be placed together. The addition of an objective measure of walking behavior such as a pedometer would allow such inconsistencies to be checked and verified.

Survey Responses to the Self-Efficacy to Walk for Health Scale

For the Self-Efficacy to Walk for Health Scale (SEWHS), the mean for the entire scale was 3.48 (*SD*=1.00), slightly skewed toward the response option "I'm sure I can." In fact, most of the responses to the individual items were slightly skewed in this direction, reflecting higher self-efficacy to walk for health.

A large percent of surveys (23%) had incomplete SEWHS data. This suggests that there may have been confusion about how to complete the SEWHS questions or, perhaps, that participants were disinterested or fatigued toward the end of the survey.

In addition, some participants did not answer some of the other questions in the self-administered survey. It is not known whether this was their choice and intention or whether they simply did not understand questions. It is also possible that a question was skipped because the woman was distracted or in a hurry. In future studies, more attention

should be given to checking the accuracy and completeness of the survey before it is turned in. In addition, staff should be trained to be aware of signs that a participant is having difficulty reading or comprehending the survey and offer help as needed. Staff should also ask participants if they have questions about the survey before they turn it in.

Data Analysis and Findings

Data were analyzed using SPSS® 11.5. The analyses and findings for each research question are presented. The results of additional analyses are also presented.

Research Question 1

The findings from a focus group were used to answer the first research question. A list of barriers to walking for health were identified by the focus group for inclusion in a Self-Efficacy to Walk for Health Scale to be used with midlife and older, low-income African American women (Appendix K). The group validated 11 of the 13 barriers theoretically derived from the literature including a unique item: "I just had my hair done" that was determined by the group to be particularly significant for African American women. Participants also contributed two new items: "I lack the motivation" and "I don't feel the need to walk for my health." Although eight women expressed interest in attending the focus group and seven agreed to attend, only four actually attended. However, the four women were extremely vocal and represented of a variety of exercise behaviors and attitudes.

Research Question 2

The second research question examined the psychometric properties of the SEWHS: content validity, construct validity, and reliability. The SEWHS was evaluated

by experts to estimate content validity. The author recruited via email nurses with experience in the area of health promotion with low-income populations. Four experts were African American and three were Anglo American. A content validity index (CVI) (Lynn, 1986; Waltz & Bausell, 1981) was calculated from the content experts' ratings of the relevance of each item and the entire scale. The content validity index (CVI) was acceptable for both the individual items (.86 to 1.0) and the entire scale (.97). Factor analysis using principal axis factoring with oblique rotation specifying two factors revealed that the two factors were correlated ($r=.71$, $p<.01$), providing evidence for a one-factor solution. The factor loadings were statistically significant at the .05 level, providing evidence of construct validity. Internal consistency reliability (Cronbach's coefficient alpha) was .92. The average inter-item correlation was .64. These psychometric tests provided preliminary estimates of validity and reliability of the SEWHS.

Research Question 3

The third research question examined the relationship between Self-Efficacy to Walk for Health scores and walking for health behavior. In this sample of midlife and older, low-income, African American women, there was no significant relationship between Self-Efficacy to Walk for Health and walking for health behavior. This was an unexpected finding because self-efficacy is reported to be one of the strongest correlates of physical activity behavior in adults (King et al., 1992; Sallis & Owen, 1999; Trost et al., 2002). However, one or both of the measures of walking for health behavior were problematic in this sample and this may have affected the correlation results. This can be

attributed to the previously discussed problems with survey sample discrepant responses to the self-reported walking for health behavior measures.

Research Question 4

The fourth research question examined relationships among the sociodemographic variables and Self-Efficacy to Walk for Health (SEWH). SEWH was not significantly related to age or to education. Self-Efficacy to Walk for Health was significantly related to Self-Rated Health (r=.38, p<.01), and Self-Rated Weight (r=-.24, p<.05). The relationship between self-efficacy and self-rated health and weight has been demonstrated in previous research, providing substantiation for SEWH as a valid instrument.

Research Question 5

The fifth research question explored relationships between sociodemographic variables and walking for health behavior. No significant relationships were found between either of the self-reported walking for health measures (SOC or SRWH) and age, education, and Self-Rated Weight. Those with greater perceived health (SRH) reported that they walked more, as measured by Stage of Change for Walking for Health (r=-.20, p<.05), providing confirmation of the relationship between SRH and physical activity found by Ainsworth et al. (2003). This relationship also approached significance (r=.18, p=.06) in the second measure of walking for health behavior, Self-Reported Walking for Health. Because of the previously described problems with responses to the walking for health behavior items, these results should be interpreted with caution. Integration of a

social desirability scale within this instrument could be used during its next administration.

Additional Analyses

Additional analyses from the correlation matrix provided information on the relationship between other variables in the study. Significant relationships were found between age and education (r=-.30, p<.01); Self-Rated Health and education (r=.27, p<.01); and, Self-Rated Weight and education (r=.28, p<.01). These findings are consistent with those reported for the general population.

Discussion

There were two unexpected findings. One was related to the discrepancy between the Self-Reported Walking for Health (SRWH) and Stage of Change for Walking for Health (SOC) questions. The other unexpected finding was the lack of significant relationships between some of the study variables and Self-Efficacy to Walk for Health.

An explanation for the discrepancy between SRWH and SOC may be that some of the subjects were simply less active than usual during the past two weeks. However, since 40% of the sample were affected, it is more likely that the questions were confusing or were affected by social desirability. A third objective measure, such as a pedometer could be used in future studies to obtain an objective measure of walking for health behavior.

It is also possible that the Stage of Change question was confusing. Others have reported problems with the Stage of Change measure in non-Anglo American (Heesch et

al., 2000) and low-income (Collins et al., 2004) women, indicating that more research is needed to validate Stage of Change measures in these populations.

An interesting finding was that although there were more than the expected percentage of women in the maintenance Stage of Change for Walking for Health, the largest percent (32%) of women in this sample were in the preparation stage (did not currently walk 30 minutes, 5 days a week but intended to in the next 30 days). In addition, five women wrote comments on their surveys referring to their intention to begin walking soon, for example: "I will walk. I Promise;" "I need to walk—I know this—I will try;" "My health is such that I'm not able to walk or stand for any length of time. But when the Lord completes my healing I will walk 30 minutes 5 days a week;" "I intend to start walking when daylight saving time come. I have to walk with others and I need to be motivated because I feel like I can't do it by myself. So I will try to walk for my health real soon." It is appears that for some women, participation in the survey itself acted as an intervention to encourage them to walk or is a reflection of social desirability that this author claimed. It is also possible that the women in the preparation stage have heard the message about the benefits of exercise and are intending to begin. In a future study it would be interesting to follow-up with these women in 30 days to see if they actually had moved to the action stage.

The lack of significant relationships between Self-Efficacy to Walk for Health and age, education, and walking for health behavior was an unexpected finding as these have all been found to be among the most consistent correlates of physical activity behavior in adults (Adams-Campbell, et al., 2000; Ainsworth, et al., 2003; Eyler, Wilcox,

et al., 2002; Jones, 2003;King et al., 1992; Sallis & Owen, 1999; Trost et al., 2002; USDHHS, 1996). A better self-report measure of walking for health behavior, an objective measure such as a pedometer, more items on the SEWHS, and a larger sample may have allowed more variability and perhaps stronger relationships.

It is also possible that the lack of significant relationships between Self-Efficacy to Walk for Health and age, education, and walking for health behavior was related to inflated self-efficacy scores. The mean for the SEWHS was 3.48 (*SD*=1.00), slightly skewed toward the response option "I'm sure I can." Other researchers(Castro et al., 1999; Speck & Looney, 2001) found that sedentary women tended to overestimate their ability and underestimate the barriers involved in becoming physically active. In these intervention studies, self-efficacy scores decreased from baseline to post-intervention rather than increase as expected. A likely explanation is that for sedentary women, making the decision to enter a physical activity intervention study requires at least a moderate level of self-efficacy. Because sedentary women don't have the experience with regular physical activity to know how difficult it can be, their expectations at the start of the program can be unrealistically high. Once they attempt regular physical activity and encounter unexpected barriers to meeting their activity goal, their self-efficacy decreases. When planning a physical activity intervention it would be important to measure self-efficacy at baseline, at an intermediate point during the intervention, and at post-intervention. This would document changes in self-efficacy that are related to unrealistic baseline assessments and provide a more accurate measure of changes in self-efficacy related to the intervention.

Limitations

The following were limitations of this study:

1. Self-report of walking behavior has the potential for recall bias.
2. Non-random selection of the sample.
3. The study sample is selected from a population of women who are clients of a breast cancer screening clinic or are requesting information on breast cancer screening services (e.g. at a health fair) and may not be representative of the larger population of low-income women. The sample is comprised of one racial/ethnic group, African American.
4. The study instrument is written in English, at a 5th grade reading level, and is self-administered. If a participant is not able to read well enough to comprehend the meanings of the questions, her responses could be misleading.
5. Low-income is often a transitory state: A woman may be currently eligible for low-income services, such as those offered through the Breast and Cervical Cancer Control Program, but she may have only become low-income a short while ago, through the loss of a job, illness, death or divorce. So while this study is focused on self-efficacy and walking among low-income women, attitudes and practices of women of various income levels may be represented.
6. Lack of control of data collection. Because the researcher is Anglo American and the study sample is African American, it was preferable that

participant recruitment and data collection be done by BCOP (African American) staff. However, this decision represented a loss of control for the researcher and also resulted in incomplete and inaccurate surveys.

7. The threat of history: It is not known whether participants were receiving messages about walking from the media, health fair, or BCOP staff. This could have influenced their responses to survey questions.

Implications

Research

The results of this investigation into the psychometric properties of the SEWHS are encouraging. Future studies with the SEWHS are needed to confirm or modify these findings. Criterion validity of the SEWHS could be examined by interviewing individuals first and making a clinical judgment of self-efficacy to walk for health and then administering the SEWHS. This additional validity would strengthen the instrument.

The results of this study contribute to our understanding of research methods, and especially the threat of instrumentation in studies with low-income populations. Given the incomplete survey data and the discrepancies noted in self-reported walking for health behavior measures, it is recommended that future studies make provision for staff training and extra staff time to review surveys before they are turned in by respondents. Staff also need training when administering the surveys to detect women who are having difficulty understanding the questions, or cannot see or read. Because this study had limited funds, the surveys were administered by volunteer staff of an existing program,

with directions to exclude women who could not read. Training staff in administering the surveys would not only allow more women to participate but would also improve the completeness and accuracy of the data collected, and decrease the effects of instrumentation. There is also some evidence that social desirability may have affected responses to the survey. The addition of a social desirability measure and an objective measure to validate self-reported walking may reduce these threats to instrumentation.

The Stage of Change question was developed and validated with primarily Anglo American, middle class samples. The problems with the Stage of Change measure encountered in this study were also found in other studies with low-income and ethnic minority women (Collins et al., 2004; Heesch, et al., 2000). Specific studies are needed to examine both the language and the psychometric properties of the Stage of Change instrument in non-Anglo American populations.

Theory

The results of this study contribute to our understanding of measurement of the self-efficacy construct. The instrument developed and tested seems to reflect that the barriers to perform physical activity represent a single construct of phenomenon that can be measured. Current physical activity research is limited by the lack of information on measurement of the self-efficacy construct in ethnic minority populations. The results of this study contribute to our understanding of the relationship between correlates of physical activity in midlife and older, low-income, African American women. This knowledge allows us to begin to study a population at high risk for health problems due

to inactivity, one that has been underrepresented in physical activity research studies to date.

Practice

This study contributes to the practice of public health nursing through its focus on an underserved, high-risk population. Midlife and older, low-income, African American women are among the most sedentary and thus at highest risk for disease and disability related to inactivity. Self-efficacy is one of the strongest correlates of physical activity yet it has received little attention in non-Anglo American, low-income populations. This study provides preliminary evidence for a valid and reliable scale to measure self-efficacy in midlife and older, low-income, African American women. This scale can be used in public health programs as a baseline and outcome measure for physical activity programs with this population. The specific barriers comprising the scale can be used to help individual participants understand and eliminate these barriers.

Conclusion

The results of this study provide new knowledge in the area of measurement of the self-efficacy construct. Psychometric testing of the SEWHS provided preliminary estimates of reliability and validity. However, more studies are needed to verify or modify these findings. The area of instrument development for use with minority populations is essential to the Healthy People 2010 goals to eliminate health disparities. It is hoped that this study can provide other researchers with useful information to advance this area of inquiry.

Appendices

Appendix A
Pilot Study Questionnaire

SCM Program Questionnaire

Subject ID_____
Date_____
mm/dd/yy

Self-Rated Health

In general, how would you say your health is (circle one)

Poor	1
Fair	2
Good	3
Very good	4
Excellent	5

Comments: _____

_____

_____

Stage of Change

Moderate physical activity includes activities such as brisk walking, gardening, and heavy housecleaning. For moderate activity to be regular, it must add up to 30 or more minutes per day and be done 3-5 days a week. For example, in one day you could achieve your total of 30 minutes by taking a brisk 10-minute walk, raking leaves for 10 minutes, and doing heavy housecleaning for 10 minutes. Question: Do you do regular moderate physical activity according to the definition above?

Circle one of the following answers:

1. Yes, I have been for MORE than 6 months.
2. Yes, I have been for LESS than 6 months.
3. No, but I intend to in the next 30 days.
4. No, but I intend to in the next 6 months.
5. No, and I do NOT intend to in the next 6 months.

Comments: _____

_____

_____

Psychological Well-Being

Circle one response for each item:

1. How much of the time, during the past month, have you been a very nervous person?

None of the time	0
A little of the time	1
Some of the time	2
A good bit of the time	3
Most of the time	4
All of the time	5

2. How much of the time, during the past month, have you felt downhearted and blue?

None of the time	0
A little of the time	1
Some of the time	2
A good bit of the time	3
Most of the time	4
All of the time	5

Psychological Well-Being (Continued)

Circle one response for each item:

3. How often during the past month, have you felt so down in the dumps that nothing could cheer you up?

None of the time	0
A little of the time	1
Some of the time	2
A good bit of the time	3
Most of the time	4
All of the time	5

4. How much of the time, during the past month, have you felt calm and peaceful?

None of the time	0
A little of the time	1
Some of the time	2
A good bit of the time	3
Most of the time	4
All of the time	5

Psychological Well-Being (Continued)

Circle one response for each item:

5. During the past month, how much of the time have you been a happy person?

None of the time	0
A little of the time	1
Some of the time	2
A good bit of the time	3
Most of the time	4
All of the time	5

Comments: _____

_____

_____

Self-Efficacy Measures

We would like to know how confident you are in doing certain activities. For each of the following questions, please mark an "X" on the line below to describe your confidence that you can/will do the tasks regularly at the present time.

Physical Activity

1. How confident are you that you can do gentle exercises for flexibility (like yoga or stretching) or strengthening (like using weights, sit-ups or push-ups) 3 to 4 times per week?

_____

Not at all Confident — Totally Confident

2. How confident are you that you can do moderate physical activity such as brisk walking, swimming or bicycling 3 to 4 times per week?

_____

Not at all Confident — Totally Confident

Comments: _____

_____

For each of the following questions, please mark an "X" on the line below to describe your confidence that you can do the tasks regularly at the present time.

Obtaining Help

1. How confident are you that you can get **family and friends** to help you with the things you need to do to be physically active?

_____

Not at all Confident — Totally Confident

2. How confident are you that you can get help from resources in the **community** to be physically active?

_____

Not at all Confident — Totally Confident

Comments: _____

_____

For each of the following questions, please mark an "X" on the line below to describe your confidence that you can do the tasks regularly at the present time.

Communication

1. How confident are you that you can get answers to your questions about community resources for physical activity?

_____

Not at all Confident — Totally Confident

2. How confident are you that you can get information about being physically active?

_____

Not at all Confident — Totally Confident

3. How confident are you that you can let others know about your goal to be physically active?

_____

Not at all Confident — Totally Confident

For each of the following questions, please mark an "X" on the line below to describe your confidence that you can do the tasks regularly at the present time.

Communication (continued)

4. How confident are you that you can work out differences with others when they arise?

_____

Not at all Confident — Totally Confident

Self-Care Management

1. How confident are you that you can set a goal to include physical activity in your daily life?

_____

Not at all Confident — Totally Confident

2. How confident are you that you can make a plan to include physical activity in your weekly schedule?

_____

Not at all Confident — Totally Confident

For each of the following questions, please mark an "X" on the line below to describe your confidence that you can do the tasks regularly at the present time.

Self-Care Management (continued)

3. How confident are you that you can keep your plan for physical activity?

_____

Not at all Confident — Totally Confident

4. How confident are you that you can make changes to your physical activity plan when you need to?

_____

Not at all Confident — Totally Confident

Comments: _____

_____

SELF-CARE MANAGEMENT BEHAVIORAL MEASURES

Physical Activity

During the past week (even if it was not a typical week), how much **total time (for the entire week)** did you spend on each of the following? (Please circle one number for each item.)

Type of Exercise	None	Less than 30 min a week	30-60 min a week	1-3 hrs a week	More than 3 hrs a week
1. Flexibility or strengthening exercises (yoga, stretching, using weights, sit-ups, etc.)	0	1	2	3	4
2. Walking briskly	0	1	2	3	4
3. Swimming or water aerobics	0	1	2	3	4
4. Bicycling (including stationary bike)	0	1	2	3	4
5. Other physical activity such as heavy housework or yard work. Specify:	0	1	2	3	4
6. Other physical activity such as heavy housework or yard work. Specify:	0	1	2	3	4
7. Other physical activity such as heavy housework or yard work. Specify:	0	1	2	3	4
8. Other physical activity such as heavy housework or yard work. Specify:	0	1	2	3	4
					Total

For office use only
Scoring: Each category is converted to the following number of minutes spent:
None = 0; 1 = 15; 2 = 45; 3 = 120; 4 = 180

Communication

In the past month, how often did you do the following?
Please circle one number for each question.

1. Got answers to your questions about community resources for physical activity?

Never	0
Almost Never	1
Sometimes	2
Fairly Often	3
Very Often	4
Always	5

2. Got information about being physically active?

Never	0
Almost Never	1
Sometimes	2
Fairly Often	3
Very Often	4
Always	5

3. Let others know about your goal to be physically active?

Never	0
Almost Never	1
Sometimes	2
Fairly Often	3
Very Often	4
Always	5

In the past month, how often did you do the following?
Please circle one number for each question.

Communication (continued)

4. Worked out differences with others when they arose?

Never	0
Almost Never	1
Sometimes	2
Fairly Often	3
Very Often	4
Always	5

Obtaining Help

1. Got help from **family and friends** with the things you need to do to be physically active?

Never	0
Almost Never	1
Sometimes	2
Fairly Often	3
Very Often	4
Always	5

2. Got help from resources in the **community** to help you be physically active?

Never	0
Almost Never	1
Sometimes	2
Fairly Often	3
Very Often	4
Always	5

In the past month, how often did you do the following?
Please circle one number for each question.

Self-Care Management

1. Set a goal to include physical activity in your daily life?

Never	0
Almost Never	1
Sometimes	2
Fairly Often	3
Very Often	4
Always	5

2. Make a plan to include physical activity in your weekly schedule?

Never	0
Almost Never	1
Sometimes	2
Fairly Often	3
Very Often	4
Always	5

3. Keep your plan for physical activity?

Never	0
Almost Never	1
Sometimes	2
Fairly Often	3
Very Often	4
Always	5

In the past month, how often did you do the following?
Please circle one number for each question.

Self-Care Management (continued)

4. Make changes to your physical activity plan when you needed to?

Never	0
Almost Never	1
Sometimes	2
Fairly Often	3
Very Often	4
Always	5

Comments: _____

_____

_____

Appendix B
IRB Approval for Pilot Study

THE UNIVERSITY OF TEXAS AT AUSTIN

Application for the Review of a Project Involving Human Subjects

APPLICATION FOR DRC REVIEW ONLY (EXEMPT FROM IRB REVIEW)

Project Title: A Self-Care Management Program to Increase Physical Activity in Wom

Principal Investigator(s): (Give address for correspondence about approval. Student PIs may prefer to list a home address rather than a departmental address.)

Susan J. Grobe	Nursing D0100	grobe@mail.utexas
(Name - type or print)	(Department **and** Campus Mail Code)	(E-mail Address)

Faculty Supervisor (if PI is a student):

(Name - type or print)	(Department **and** Campus Mail Code)	(E-mail Address)

If the project is a student project, attach the Faculty Supervisor Approval Form.

If funded or submitted for funding: Agency or source of funding UT School of Nursing

Title of grant: CHPR Pilot Study Grants

Grant contract number (if known): _____

Exemption Category: 45 CFR 46.101 (b) 2. (See Criteria for Exemption from IRB Review and Exemption Categories.)

In making this application, I certify that I understand the policies and procedures governing research with human subjects developed by The University of Texas at Austin and that I fully intend to comply with the letter and spirit of The University's Multiple Project Assurance (MPA). I further acknowledge my responsibility to report any changes in the protocol and to obtain written approval for these changes prior to making them. Copies of the Policies and Procedures Manual, the MPA, and 45 CFR 46 have been distributed to DRCs and are also available in OSP.

Continuing Review Requirements: Annual DRC review and continuing DRC and IRB surveillance must be maintained for compliance with DHHS policies and The University's MPA.

Susan J. Grobe — 5/17/01

Signature(s): Principal Investigator(s) and Faculty Supervisor (if student project) Date

Reviewed and Approved by Departmental Review Committee:

Janet Z Kahn — 5/29/01

Signature of DRC Chair Date

OFFICE OF RESEARCH SUPPORT & COMPLIANCE

THE UNIVERSITY OF TEXAS AT AUSTIN

P.O. Box 7426, Austin, Texas 78713 (512) 471-8871 - FAX (512 471-8873)
North Office Building A Suite 5.200 (Mail code A3200)

Date: **2/19/2004**

PI(s): **Kathleen K Craig** Department & Mail Code: *****PAYROLL USE ONLY** Z999**

Dear: **Kathleen K Craig**

IRB APPROVAL – IRB Protocol # **2004-02-0055**

Title: **Low-Income Women's Barriers to Walking for Health, Part I**

In accordance with Federal Regulations for review of research protocols, the Institutional Review Board has reviewed the above referenced protocol and found that it met approval under an Expedited category for the following period of time:

Your study has been approved from 02/18/2004 – 02/18/2005

Expedited category of approval:

(1) ☐ Clinical studies of drugs and medical devices only when condition (a) or (b) is met. (a) Research on drugs for which an investigational new drug application (21 CFR Part 312) is not required. (Note: Research on marketed drugs that significantly increases the risks or decreases the acceptability of the risks associated with the use of the product is not eligible for expedited review). (b) Research on medical devices for which (i) an investigational device exemption application (21 CFR Part 812) is not required; or (ii) the medical device is cleared/approved for marketing and the medical device is being used in accordance with its cleared/approved labeling.

(2) ☐ Collection of blood samples by finger stick, heel stick, ear stick, or venipuncture as follows: (a) from healthy, non-pregnant adults who weigh at least 110 pounds. For these subjects, the amounts drawn may not exceed 550 ml in an 8 week period and collection may not occur more frequently than 2 times per week; or (b) from other adults and children2, considering the age, weight, and health of the subjects, the collection procedure, the amount of blood to be collected, and the frequency with which it will be collected. For these subjects, the amount drawn may not exceed the lesser of 50 ml or 3 ml per kg in an 8 week period and collection may not occur more frequently than 2 times per week.

(3) ☐ Prospective collection of biological specimens for research purposes by Non-invasive means. Examples: (a) hair and nail clippings in a non-disfiguring manner; (b) deciduous teeth at time of exfoliation or if routine patient care indicates a need for extraction; (c) permanent teeth if routine patient care indicates a need for extraction; (d) excreta and external secretions (including sweat); (e) un-cannulated saliva collected either in an un-stimulated fashion or stimulated by chewing gumbase or wax or by applying a dilute citric solution to the tongue; (f) placenta removed at delivery; (g) amniotic fluid obtained at the time of rupture of the membrane prior to or during labor; (h) supra- and subgingival dental plaque and calculus, provided the collection procedure is not more invasive than routine prophylactic scaling of the teeth and the process is accomplished in accordance with accepted prophylactic techniques; (i) mucosal and skin cells collected by buccal scraping or swab, skin swab, or mouth washings; (j) sputum collected after saline mist nebulization.

Approval dates: 02/18/2004 - 02/18/2005 **Protocol #** 2004-02-0055

(4) ☐ Collection of data through noninvasive procedures (not involving general anesthesia or sedation) routinely employed in clinical practice, excluding procedures involving x-rays or microwaves. Where medical devices are employed, they must be cleared/approved for marketing. (Studies intended to evaluate the safety and effectiveness of the medical device are not generally eligible for expedited review, including studies of cleared medical devices for new indications). Examples: (a) physical sensors that are applied either to the surface of the body or at a distance and do not involve input of significant amounts of energy into the subject or an invasion of the subject's privacy; (b) weighing or testing sensory acuity; (c) magnetic resonance imaging; (d) electrocardiography, electroencephalography, thermography, detection of naturally occurring radioactivity, electroretinography, ultrasound, diagnostic infrared imaging, doppler blood flow, and echocardiography; (e) moderate exercise, muscular strength testing, body composition assessment, and flexibility testing where appropriate given the age, weight, and health of the individual.

(5) ☐ Research involving materials (data, documents, records, or specimens) that have been collected, or will be collected solely for non-research purposes (such as medical treatment or diagnosis). (NOTE: Some research in this category may be exempt from the HHS regulations for the protection of human subjects. 45 CFR 46.101(b)(4). This listing refers only to research that is not exempt).

(6) ☑ Collection of data from voice, video, digital, or image recordings made for research purposes.

(7) ☑ Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies. (NOTE: Some research in this category may be exempt from the HHS regulations for the protection of human subjects. 45 CFR 46.101(b)(2) and (b)(3). This listing refers only to research that is not exempt).

(8) ☐ Continuing review of research previously approved by the convened IRB as follows: (a) where (i) the research is permanently closed to the enrollment of new subjects; (ii) all subjects have completed all research-related interventions; and (iii) the research remains active only for long-term follow-up of subjects; or (b) where no subjects have been enrolled and no additional risks have been identified; or (c) where the remaining research activities are limited to data analysis.

(9) ☐ Continuing review of research, not conducted under an investigational new drug application or investigational device exemption where categories two through eight do not apply but the IRB has determined and documented at a convened meeting that the research involves no greater than minimal risk and no additional risks have been identified.

___✗___ **Please use the attached approved informed consent**

____**You have been granted Waiver of Documentation of Consent**

According to 45 CFR 46.117, an IRB may waive the requirement for the investigator to obtaina signed consent form for some or all subjects if it finds either:

___ The research presents no more than minimal risk **AND**

___ The research involves procedures that do not require written consent when performed outside of a reserach setting 45 CFR 46.117(c)(2)

or

___ The principal risks are those associated with a breach of confidentiality concerning the subject's participation in the research **AND**

___ The consent document is the only record linking the subject with the research 45 CFR 46.117(c)(1)

Approval dates: 02/18/2004 - 02/18/2005 **Protocol #** 2004-02-0055

____ **You have been granted Waiver of Informed Consent**

According to 45 CFR 46.116(d), an IRB may waive or alter some or all of the requirements for Informed consent if:

___ The research presents no more than minimal risk to subjects;
___ The waiver will not adversely affect the rights and welfare of subjects;
___ The research could not practicably be carried out without the waiver; and
___ Whenever appropriate, the subjects will be provided with additional pertinent information after they have participated in the study.

RESPONSIBILITIES OF PRINCIPAL INVESTIGATOR FOR ONGOING PROTOCOLS:

(1) Report **immediately** to the IRB any severe adverse reaction or serious problem, whether anticipated or unanticipated.
(2) Report any significant findings that become known in the course of the research that might affect the willingness of subjects to continue to take part.
(3) Insure that only persons formally approved by the IRB enroll subjects.
(4) Use **only** a currently approved consent form (remember approval periods are for 12 months or less).
(5) **Protect the confidentiality of all personally identifiable information collected and train your staff and collaborators on policies and procedures for ensuring confidentiality of this information.**
(6) Submit for review and approval by the IRB all modifications to the protocol or consent form(s) prior to the implementation of the change.
(7) Submit a **Continuing Review Report** for continuing review by the IRB. Federal regulations require **IRB review of on-going projects no less than once a year** (a Continuing Review Report form and reminder letter will be sent to you 2 months before your expiration date). Please note however, that if you do not receive a reminder from this office about your upcoming continuing review, it is the primary responsibility of the PI not to exceed the expiration date in collection of any information. Finally, it is the responsibility of the PI to submit the Continuing Review Report before the expiration period.
(8) Notify the IRB when the study has been completed and complete the Final Report Form.
(9) Please help us help you by including the above protocol number on all future correspondence relating to this protocol.

Thank you for your help in this matter.

Sincerely,

Clarke Burnham, Ph.D., Chair
Institutional Review Board

cc: DRC

Appendix D
Focus Group Consent Form

INFORMED CONSENT TO PARTICIPATE IN RESEARCH

The University of Texas at Austin

You are being asked to participate in a research study. This form provides you with information about the study. The Principal Investigator (the person in charge of this research) or his/her representative will also describe this study to you and answer all of your questions. Please read the information below and ask questions about anything you don't understand before deciding whether or not to take part. Your participation is entirely voluntary and you can refuse to participate without penalty or loss of benefits to which you are otherwise entitled.

Title of Research Study: Low-Income Women's Barriers to Walking for Health

Principal Investigator(s): Kathleen Craig, RN & Susan Grobe, PhD, RN

Funding source: None

What is the purpose of this study? The purpose of this study is to learn more about what things get in the way of low-income women walking for health benefits. You have been selected because you are financially eligible to use the services of the Community Women's Wellness Center.

What will be done if you take part in this research study? You will be asked questions in a group of about 4 women about your experiences with walking for health and your views about what gets in the way of walking for health. A discussion will be led by the researcher, Kathleen Craig, a graduate student at The University of Texas at Austin-School of Nursing. The group discussion will last for no more than 1 hour. The group discussion will be held in a conference room at the Community Women's Wellness Center, 2901 N. IH-35, in Austin.

What are the possible discomforts and risks? The only known risk to participating in this study is the time it takes to participate in the discussion.

What are the possible benefits to you or to others? You will not benefit directly from taking part in this study. However, by taking part in this discussion group, you may benefit others in the future by what is learned about what gets in the way of low-income women walking for health.

If you choose to take part in this study, will it cost you anything? There is no cost to you for taking part in the study.

Will you receive compensation for your participation in this study? Pizza will be provided during the discussion to thank you for taking part in the study.

What if you are injured because of the study? No medical treatment will be provided or available in case of injuries as a result of participation in this study.

If you do not want to take part in this study, what other options are available to you? Not applicable. This is not a treatment or intervention study.

What if I change my mind? Your decision to take part in this study is voluntary. You are free at any time to withdraw from this study. Your decision not to take part in this study will not affect current or future relationships with The University of Texas at Austin or the services you receive from the Community Women's Wellness Center.

If you wish to stop your participation in this research study for any reason, you should contact: Kathleen Craig or Susan Grobe at (512) 232-4706. You are free to withdraw your consent and stop participation in this research study at any time without penalty or loss of benefits for which you may be entitled. Throughout the study, the researchers will notify you of new information that may become available and that might affect your decision to remain in the study.

In addition, if you have questions about your rights as a research participant, please contact Clarke A. Burnham, Ph.D., Chair, The University of Texas at Austin Institutional Review Board for the Protection of Human Subjects, 512/232-4383.

How will your privacy and the confidentiality of your research records be protected? What you say will be kept confidential. The tape cassettes will be coded, so that no personally identifying information is visible on them. The information from the study will be kept secured in a locked file cabinet in the researcher's office. Only the researcher involved in the study will have access to the tape recording and its transcription. When the study is over, the tape recording will be destroyed.

Authorized persons from The University of Texas at Austin and the Institutional Review Board have the legal right to review your research records and will protect the confidentiality of those records to the extent permitted by law. If the research project is sponsored then the sponsor also has the legal right to review your research records. Otherwise, your research records will not be released without your consent, unless required by law or a court order. If the results of this research are published or presented at scientific meetings, your identity will not be disclosed.

Will the researchers benefit from your participation in this study: The researcher will not benefit from your participation in this study beyond publishing or presenting the results.

Signatures:

As a representative of this study, I have explained the purpose, the procedures, the benefits, and the risks that are involved in this research study:

_____ _____
Signature and printed name of person obtaining consent Date

You have been informed about this study's purpose, procedures, possible benefits and risks, and you have received a copy of this form. You have been given the opportunity to ask questions before you sign, and you have been told that you can ask other questions at any time. You voluntarily agree to participate in this study. By signing this form, you are not waiving any of your legal rights.

_____ _____
Printed Name of Subject Date

_____ _____
Signature of Subject Date

_____ _____
Signature of Principal Investigator Date

Appendix E

Focus Group Discussion Guideline

Prior to starting the group:

1) Invite the women to fill out and put on a name tag.
2) Tell the women the location of the rest room.
3) Invite the women to get something to eat and drink and have a seat.

Officially start the group:

1) Welcome. Thank the women for coming.
2) Introduce self.
3) Review purpose of the research study.
4) Ask each woman to fill out and sign a consent form. Give a second copy to the woman to keep. Collect the signed consent form and put in a folder.
5) Review ground rules:
    a. What is said is confidential
    b. Use our first names only
    c. Please speak one at a time
    d. There are no right or wrong answers—we want their opinions
    e. May get up at any time to get something to eat or drink.
    f. We will finish in one hour.
6) START TAPE #1; IN 1 MINUTE, START TAPE #2

Research Questions:

1) Icebreaker: Name a type of physical exercise that you have done for your health, or that you have thought about doing for your health (go around the table so that each person has the opportunity to participate).
2) For women like yourselves, what gets in the way of fitting exercise into your daily life? (Again, be sure each person has the opportunity to participate).
3) When thinking specifically of walking for your health, are there any barriers that get in the way of walking for health?
4) Give each woman the paper with the examples of possible self-efficacy response formats. Tell the women that these are different ways that researchers use to ask questions about people's confidence in doing tasks, like walking for exercise.
5) Ask the women to rate each format: Put a '1' next to the format(s) they, and women like themselves, think is easiest to understand and use. Put an 'X' next to the response option(s) that they think is very hard to understand.

Wrap-up:

1) Turn off tape recorder.
2) Thank the women for participating.
3) Debriefing—How was this experience for them? What did they think of it?
4) Invite each woman to take home any of the remaining food (have foil and plastic bags on hand).

Please rate how sure you are that you can walk for health at least 30 minutes, 5 days a week?

0	10	20	30	40	50	60	70	80	90	100
Cannot do at all					Moderately certain can do					Certain can do

For each question, write your answer (any number from 0–100) in the space below.

a. When I'm feeling tired……. _____
b. When I just had my hair done……. _____
c. I feel stressed…… _____
d. The weather is not good…… _____
e. Someone in my family is sick…… _____
f. I feel depressed…….. _____
g. I have no one to walk with me…….. _____
h. I am too busy with other things…… _____
i. I am busy taking care of family or others……. _____
j. There is no safe place to walk…… _____
k. I have too much work…… _____
l. I feel pain when I walk……. _____
m. My family needs me…… _____

How sure are you right now that you can walk for your health at least 30 minutes, 5 days a week when: (Circle the number that describes how sure you are.)

	I'm sure I cannot				I'm sure I can
I feel tired	1	2	3	4	5
I just had my hair done	1	2	3	4	5
I feel stressed	1	2	3	4	5
The weather is not good	1	2	3	4	5
Someone in my family is sick	1	2	3	4	5
I feel depressed	1	2	3	4	5
I have no one to walk with me	1	2	3	4	5
I am too busy with other things	1	2	3	4	5
I am busy taking care of family or others	1	2	3	4	5
There is no safe place to walk	1	2	3	4	5
I have too much work	1	2	3	4	5
I feel pain when I walk	1	2	3	4	5
My family needs me	1	2	3	4	5

How sure are you right now that you can walk for your health at least 30 minutes, 5 days a week when: (Circle the number that describes how sure you are.)

	yes, sure	probably sure	maybe yes/ maybe no	probably not	no, not sure
I feel tired	1	2	3	4	5
I just had my hair done	1	2	3	4	5
I feel stressed	1	2	3	4	5
The weather is not good	1	2	3	4	5
Someone in my family is sick	1	2	3	4	5
I feel depressed	1	2	3	4	5
I have no one to walk with me	1	2	3	4	5
I am too busy with other things	1	2	3	4	5
I am busy taking care of family or others	1	2	3	4	5
There is no safe place to walk	1	2	3	4	5
I have too much work	1	2	3	4	5
I feel pain when I walk	1	2	3	4	5
My family needs me	1	2	3	4	5

How confident are you right now that you could walk for health at least 30 minutes, 5 days a week when:

	Not very confident										Very confident
I feel tired	0	1	2	3	4	5	6	7	8	9	10
I just had my hair done	0	1	2	3	4	5	6	7	8	9	10
I feel stressed	0	1	2	3	4	5	6	7	8	9	10
The weather is not good	0	1	2	3	4	5	6	7	8	9	10
Someone in my family is sick	0	1	2	3	4	5	6	7	8	9	10
I feel depressed	0	1	2	3	4	5	6	7	8	9	10
I have no one to walk with me	0	1	2	3	4	5	6	7	8	9	10
I am too busy with other things	0	1	2	3	4	5	6	7	8	9	10
I am busy taking care of family or others	0	1	2	3	4	5	6	7	8	9	10
There is no safe place to walk	0	1	2	3	4	5	6	7	8	9	10
I have too much work	0	1	2	3	4	5	6	7	8	9	10
I feel pain when I walk	0	1	2	3	4	5	6	7	8	9	10
My family needs me	0	1	2	3	4	5	6	7	8	9	10

Appendix G
Survey Recruitment Flier

self-care management

African American Women's

Barriers to Walking for Health

Are you an African American woman
age 40 or older with limited income?

If so, you are invited to take part in a
research study conducted by
The University of Texas at Austin
School of Nursing looking at what
gets in the way of walking for health.

You will be asked to fill out a one-page survey
(takes 10-15 minutes) and will receive a pair
of athletic socks as a thank you gift.

For more information contact:

Kathleen Craig, RN
The University of Texas at Austin
School of Nursing
1700 Red River Street, Austin, TX 78701

Appendix H
IRB Approval for Survey

OFFICE OF RESEARCH SUPPORT & COMPLIANCE

THE UNIVERSITY OF TEXAS AT AUSTIN

P.O. Box 7426, Austin, Texas 78713 (512) 471-8871 - FAX (512 471-8873)
North Office Building A Suite 5.200 (Mail code A3200)

Date: **3/5/2004**

PI(s): **Susan J Grobe**
Kathleen Craig

Department & Mail Code: **NURSING SCHOOL** **D0100**

~~***PAYROLL USE ONLY*** Z9999~~
NUR D010

Dear: **Susan J Grobe** **Kathleen Craig**
IRB APPROVAL – IRB Protocol # **2004-03-0001**

Title: **African-American Women's Barriers to Walking for Health**

In accordance with Federal Regulations for review of research protocols, the Institutional Review Board has reviewed the DRC's exempt status assessment of the above referenced protocol and found that it meets Exempt Approval under the category designated below for the following period:

Your study has been approved from 03/04/2004 - 03/04/2005

Exempt Category of Approval:

☐ 1. Research conducted in established or commonly accepted educational settings, involving normal educational practices, such as:
(i) research on regular and special education instructional strategies, or
(ii) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.

☒ 2. Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless:

(i) Information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; **and**
(ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subject's financial standing, employability, or reputation

☐ 3. Research involving the use of educational tests, survey or interview procedures, or observing public behavior that is not exempt under number 2 above, if the subjects are public officials or candidates for public office or a federal statute requires that the confidentiality of personally identifiable information will be maintained throughout the research and thereafter.

☐ 4. Research involving the collection or study of existing data, documents, records, pathological or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, either directly or through identifiers linked to the subjects. To qualify for this exemption, the data, documents, records or specimens must be in existence before the project begins.

☐ 5. Research and demonstration projects which are conducted by or subject to the approval of department or agency heads, and which are designed to study, evaluate, or otherwise examine:
(i) Public benefit or service programs;
(ii) procedures for obtaining benefits or services under those programs;
(iii) possible changes in or alternatives to those programs or procedures; or
(iv) possible changes in methods or levels of payment for benefits or services under those programs.

IRB Protocol # **2004-03-0001** Approval Dates: **03/04/2004** - **03/04/2005**

☐ 6. Taste and food quality evaluation and consumer acceptance studies, involving adults only.

_____ **Please use the attached approved consent forms**

__x__ **You have been granted Waiver of Documentation of Consent**

__✔__ The research presents no more than minimal risk **AND**

__✔__ The research involves procedures that do not require written consent when performed outside of a research setting

or

_____ The principal risks are those associated with a breach of confidentiality concerning the subject's participation in the research **AND**

_____ The consent document is the only record linking the subject with the research

_____ **You have been gratned Waiver of Informed Consent**

_____ The research presents no more than minimal risk to subjects;

_____ The waiver will not adversely affect the rights and welfare of subjects;

_____ The research could not practicably be carried out without the waiver; and

_____ Whenever appropriate, the subjects will be provided with additional pertinent information after they have participated in the study.

RESPONSIBILITIES OF PRINCIPAL INVESTIGATOR FOR ONGOING PROTOCOLS:

(1) Report **immediately** to the IRB any severe adverse reaction or serious problem, whether anticipated or unanticipated.
(2) Report any significant findings that become known in the course of the research that might affect the willingness of subjects to continue to take part.
(3) Insure that only persons formally approved by the DRC enroll subjects.
(4) If relevant to your study, please use **only** a currently approved consent form (remember approval periods are for 12 months or less).
(5) **Protect the confidentiality of all personally identifiable information collected and train your staff and collaborators on policies and procedures for ensuring confidentiality of this information.**
(6) Submit for review and approval by the IRB all modifications to the protocol or consent form(s) prior to the implementation of the change.
(7) Please note that this office will send out a reminder prior to the end of your approval period (typically at the end of the 12 months). At this time we will ask you to give us an update on whether the study is still in progress and/or has had any changes that need to be reviewed for approval.
(8) Notify the IRB and the DRC when the study has been completed and complete the Final Report Form.
(9) Please help us help you by including the above protocol number on all future correspondence relating to this protocol.

Thank you for your help in this matter.

Sincerely,

Clarke Burnham, Ph.D., Chair
Institutional Review Board ok

cc: DRC

Appendix I
Survey Information Letter

African American Women's Barriers to Walking for Health

You are invited to tell us what you think gets in the way of African American women walking for health benefits. This information will help nurses to better understand women's barriers to walking for health and can help us develop programs that encourage women to be more physically active.

You are asked to complete this questionnaire because you are an African American woman over the age of 40 and eligible to use the services of the African American Women's Breast Cancer Screening Outreach and Case Management Services (AABCO) program. You will be one of 150 women asked to participate. Women who do and do not walk for health can take part in this research study.

If you decide to participate, you will be asked to complete a short questionnaire. It will take about 10 to 15 minutes to complete. You have the right not to participate in this study and you can choose to stop at any time. If you wish to stop your participation in this research study for any reason, you should contact Kathleen Craig or Susan Grobe at (512) 232-4706. In addition, if you have questions about your rights as a research participant, please contact Clarke A. Burnham, Ph.D., Chair, The University of Texas at Austin Institutional Review Board for the Protection of Human Subjects, 512/232-4383.

Your decision not to take part in this study will not affect current or future relationships with The University of Texas at Austin or the services you receive from AABCO. There is no cost to you for participating in the study. The only known risk to participating in this study is the time it takes to answer the questions.

Since you do not have to sign this form, your answers will be confidential. Only group results will be reported from this study. Your completion of the questionnaire will indicate your willingness to have this information used in the study.

A pair of athletic socks will be given to you as a small gift to thank you for completing the questionnaire.

If you would like to take part in this study, please tell the AABCO staff person who gave you this information sheet. She will give you a questionnaire to complete. If you have any questions I will be happy to answer them for you.

Kathleen Craig, RN
The University of Texas at Austin, School of Nursing
1700 Red River, Austin, TX 78701
(512) 232-4706

You may keep this cover letter that explains the study and the handling of the information you supply. **Thank you very much for your time**.

Appendix J
Survey

Comments

African-American Women's Barriers to
Walking for Health

The University of Texas at Austin
School of Nursing

These questions are about yourself, your health, your walking behavior, and your confidence to walk for your health. The questions will take 10-15 minutes to answer.

1. Your age: (write in) _____

2. Years of school: (circle one)
   None 1 2 3 4 5 6 7 8 9 10 11 12 GED 13 14 15 16

3. Would you say that in general your health is:
   (Pick one of these answers.)
   - ❑ Poor
   - ❑ Fair
   - ❑ Good
   - ❑ Very Good
   - ❑ Excellent

4. How would you describe your current weight?
   (Pick one of these answers)
   - ❑ Underweight for my height
   - ❑ At the right weight for my height
   - ❑ Slightly overweight for my height
   - ❑ Very overweight for my height

5. How many times in the past 2 weeks have you walked for your health? (write in) _____

   How many minutes did you walk each time? (write in)_____

6. How long have you been walking for health for at least 30 minutes, 5 times a week? (Pick one of these answers.)
   - ❑ More than 6 months
   - ❑ Less than 6 months
   - ❑ I don't walk right now, but I intend to in the next 30 days.
   - ❑ I don't walk right now, but I intend to in the next 6 months.
   - ❑ I don't walk right now & I do not intend to in the next 6 months.

7. How sure are you right now that you can walk for your health at least 30 minutes, 5 days a week **when**:
   (Circle the number that describes how sure you are.)

	I'm sure I can't				I'm sure I can
I feel tired.	1	2	3	4	5
I just had my hair done	1	2	3	4	5
I feel stressed	1	2	3	4	5
The weather is not good	1	2	3	4	5
Someone in my family is sick	1	2	3	4	5
I feel depressed	1	2	3	4	5
I have no one to walk with me	1	2	3	4	5
I am too busy with other things	1	2	3	4	5
I am busy taking care of family or others	1	2	3	4	5
There is no safe place to walk	1	2	3	4	5
I have too much work	1	2	3	4	5
I feel pain when I walk	1	2	3	4	5
I lack the motivation	1	2	3	4	5
I don't feel the need to walk for my health	1	2	3	4	5

Is there anything else you'd like to say? Please use the back of this page to write your comments.
Thank you for your help. Return this to the AABCO Office and pick up your thank you gift!

Appendix K

Self-Efficacy to Walk for Health Scale

How sure are you right now that you can walk for your health at least 30 minutes, 5 days a week **when**: (Circle the number that describes how sure you are.)

	I'm sure I can't				I'm sure I can
I feel tired	1	2	3	4	5
I just had my hair done	1	2	3	4	5
I feel stressed	1	2	3	4	5
The weather is not good	1	2	3	4	5
Someone in my family is sick	1	2	3	4	5
I feel depressed	1	2	3	4	5
I have no one to walk with me	1	2	3	4	5
I am too busy with other things	1	2	3	4	5
I am busy taking care of family or others	1	2	3	4	5
There is no safe place to walk	1	2	3	4	5
I have too much work	1	2	3	4	5
I feel pain when I walk	1	2	3	4	5
I lack the motivation	1	2	3	4	5
I don't feel the need to walk for my health	1	2	3	4	5

Appendix L

Content Validation of the Self-Efficacy to Walk for Health Scale
Content Specialist Evaluation Sheet

This scale is designed to measure confidence to walk for health among low-income, African-American women, age 40 and older.

Respondents are asked to circle the number that describes "How sure are you right now that you can walk for your health at least 30 minutes, 5 days a week when…" (a list of barriers to walking follows) on a 5-point scale with the anchors: 1 = I'm sure I can't; and 5 = I'm sure I can.

Please evaluate each of the barriers using a 4-point scale: 1 = not meaningful or relevant; and 4 = very meaningful or relevant, on the basis of meaningfulness or relevance to this population.

Type an 'X' over the number to indicate your answer.

	Not Very Meaningful or Relevant			Very Meaningful or Relevant
I feel tired	1	2	3	4
I just had my hair done	1	2	3	4
I feel stressed	1	2	3	4
The weather is not good	1	2	3	4
Someone in my family is sick	1	2	3	4
I feel depressed	1	2	3	4
I have no one to walk with me	1	2	3	4
I am too busy with other things	1	2	3	4
I am busy taking care of family or others	1	2	3	4
There is no safe place to walk	1	2	3	4
I have too much work	1	2	3	4
I feel pain when I walk	1	2	3	4
I lack the motivation	l	2	3	4
I don't feel the need to walk for my health	1	2	3	4

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